Senhaja Berber Varieties:

Phonology, Morphology, and Morphosyntax

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This thesis presents a polylectal study of Senhaja Berber varieties (Northwestern Morocco), underlining the differences and commonalities between them. The thesis is based on fieldwork data, issuing from seven varieties. Three varieties – Ketama (West), Hmed (Center), and Zerqet (East) – are focused on to cover Senhaja most fully and accurately. The studied varieties are important for the understanding of the linguistic variation and history of the region. Senhaja shows some similarities to the Ghomara language (spoken to its West), and to Tarifiyt (spoken to its East), but there are also substantial differences. Senhaja and Ghomara might share a common origin.

The thesis covers the major domains of the language (phonology, morphology, morphosyntax) and pays attention to the contact linguistics phenomena. Senhaja has been heavily influenced by Arabic in its lexicon, morphology, and syntax. Arabic patterns are found, for example, in verb derivation and derivation of diminutives. In Senhaja, adjectives form a distinct class, which is not common in Berber. Some Senhaja varieties allow for adjectives to be conjugated, which makes them similar to verbs. Another special feature of Senhaja is the divergent behavior of the verbal clitics. Across Berber, clitics are fronted under specific syntactic conditions. In Ketama, clitic fronting can be incomplete, and the deictic clitic may be doubled. In other parts of Senhaja, clitics can remain postposed, where they normally should be fronted. It is argued that the main driving forces behind the divergent clitic behavior in Senhaja are reanalysis, grammaticalization, and the drive to avoid ambiguity.

Keywords: Senhaja, Berber, Northern Morocco, verbal morphology, morphophonology, clitics, partial clitic fronting, contact linguistics, grammatical borrowing, polylectal grammar, descriptive grammar, dialectal variation.

Variétés berbères senhaja: phonologie, morphologie et morphosyntaxe

Cette thèse présente une étude polylectale de plusieurs variétés berbères senhaja (nord-ouest du Maroc), soulignant les différences et points communs entre elles. Basée sur des données de terrain issues de sept variétés, elle porte une attention particulière à trois variétés : le ketama, le hmed et le zerqet. Ces variétés sont importantes pour la compréhension de la variation linguistique et de l'histoire de la région. Le senhaja présente des similitudes avec le ghomara, parlé plus à l'ouest, et le tarifiyt, parlé plus à l'est, mais les différences restent substantielles. Le senhaja et le ghomara pourraient avoir une origine commune.

La thèse couvre les principaux domaines de la langue (phonologie, morphologie, morphosyntaxe) et s'intéresse aux phénomènes de linguistique de contact. Le senhaja a été fortement influencé par l'arabe dans son lexique, sa morphologie et sa syntaxe. Le modèle arabe de dérivation se retrouve dans la formation de causatifs et de participes de verbes d'origine berbère. Les adjectifs forment une classe distincte, ce qui n'est pas courant en berbère. Dans certaines variétés, les adjectifs sont conjugués, ce qui les rend similaires aux verbes. Une autre particularité est le comportement divergent des clitiques verbaux. En berbère, les clitiques sont préverbés dans des conditions syntaxiques spécifiques. En ketama, l'attraction des clitiques peut être incomplète et le clitique déictique peut être répété. Dans d'autres variétés, les clitiques peuvent rester postposés, alors qu'ils devraient être préposés. La réanalyse, la grammaticalisation et la volonté d'éviter l'ambiguïté peuvent expliquer le comportement divergent des clitiques du senhaja.

Mots clés : senhaja, berbère, Maroc du Nord, morphologie verbale, morphophonologie, clitiques, attraction partielle des clitiques, linguistique du contact, emprunt grammatical, grammaire polylectale, grammaire descriptive, variation dialectale.

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Symbols and Abbreviations

-	Morpheme Boundary
=	Clitic Boundary
^	Assimilation, elision/ truncation, vowel sandhi
*	Ungrammatical
<	Underlying/original form
1, 2, 3	First, second, and third person
A	Aorist (in the gloss line)
ADJ	Adjective
ANP	Anaphoric deictic clitic (*nna*)
AOR	Aorist (in the text/tables)
AQA	Present relevance particle *aqa*
AUG	Augmentative
Ar.	Arabic
B	(Ayt) Bunsar
B.	Berber
C	Consonant
CAUS	Causative
CC	Biradical verb (no alternation)
CC*	Biradical verb with alternation
CCC	Triradical verb
CF	Counterfactual *if*
cf.	compare, see also
CL	Clitic
coll.	Collective
COMP	Complementizer
D	DO (in Chapter 13)
DAT	Dative preposition 'to', 'for'
dim.	Diminutive
DIST	Distal clitic
DO	Direct object
EA	*Etat d'annexion* (annexed state)
EL	*État libre* (free state)
EXST	Existential participle *kayen*
M	Masculine
F	Feminine
fc.	Forthcoming
FP	Feminine Plural
Fr.	French
FS	Feminine Singular
FT	Future marker *(ma)š*
H	(Ayt) Hmed
I	Imperfective (in the gloss line)
I	IO (in Chapter 13 models)
IMP	Imperative
intr.	Intransitive verb
IO	Indirect object
IPF	Imperfective (in lists/tables)
K	Ketama
K1	Ketama: Beni Aisi/Beni Hmed
K2	Ketama: Talghunt/Lmekhzen
L	original **l*
M	Mezduy
MED	Medial deixis
MP	Masculine Plural
MS	Masculine Singular
NDF	Indefinite pronoun *a*
NEG	Negation
NR	Non-real particle *a(d)*
P	Perfective (in the gloss line)
p.c.	Personal communication
PASS	Passive
PERF	Perfective (in the text/tables)
PH	Pronominal head
PL	Plural (in the text/tables)
PNG	Person, Number, Gender
PRED	Predicative *d*
PROX	Proximate
PRS	Presentative
PST	Past
Q	Question particle *ka/waš*
QA	Pseudo-verb *(a)qa*
RF	Relative form
RM	Relative marker
S	(Ayt) Seddat
S	Singular (in the gloss line)
SG	Singular (in the text/tables)
Snh.	Senhaja (pan-Snh. = common)
Sp.	Spanish
T	Taghzut
T1	Taghzut: Lqela dialect
T2	Taghzut dialects outside Lqela
trans.	transitive verb
V	Ventive (Chapter 13 models)
V	Vowel
VC	Ventive clitic
WH	who, what
Z	Zerqet
Z1	Zerqet: Ikherruden dialect
Z2	Zerqet: Bunjel dialect

1. Introduction

1.1. Berber Languages

This thesis studies some particular grammatical features of Senhaja Berber (Northwestern Morocco), with special attention to the verbal morphology and the behavior of the clitic complex. This work is descriptive in nature. Several Senhaja varieties are studied, with a focus on Ketama (Western Senhaja, spoken in several villages in the Abdelghaya-Souahel municipality). Comparisons are provided with other Senhaja Berber varieties and other Berber languages.

Senhaja Berber belongs to the Berber language family. (Some prefer the term *Tamazight*, but not all Berber speakers use this term to refer to their mother tongue). Berber languages are spoken in North Africa from Morocco in the West to the Egyptian oasis Siwa in the East. General overviews can be found in Basset 1952, Galand 1988, and Kossmann 2012. In Morocco, there are three major Berber languages: Tarifiyt (Rif Berber) in the North-East; Middle Atlas (also: Central Moroccan Berber) in the Middle Atlas, and Tashelhiyt (Sous) Berber in the South. The *lingua franca* in Morocco is Moroccan Arabic. In school, Standard Arabic and French are taught. Spanish has had (and continues to have) a considerable influence on the northern part of Morocco.

The whole northern part of Morocco is known as the Rif. The geographical territory of the Rif mountains does not correspond to the linguistic use of the term “Rif, Riffian”. In this study, the term Tarifiyt is used to refer to the Berber varieties spoken between Al Hoceima and Berkane. The western part of the Rif is known as the Jbala (‘mountain region’). The major cities in this region are Tétouan, Chefchaouen, and Ouezzane. The Jbala region is predominantly Arabic-speaking, but includes two discontinuous Berber-speaking areas: Ghomara in the province of Chefchaouen, and Senhaja in the province of Al Hoceima. On Ghomara Berber, see Colin 1929, El Hannouche 2008 and 2010, and Mourigh 2015. The present work is devoted to the study of Senhaja Berber varieties (with a focus on Ketama). Ghomara and Senhaja are separated by an Arabic-speaking area. It is interesting that in spite of this geographical discontinuity, the languages share a lot of features, and Senhaja can be seen as a “bridge” between Ghomara Berber and Tarifiyt.

1.2. ‘Senhaja’, ‘Ketama’, and other Names

Senhaja Berber is known under different names, such as: [Berber of] Senhaja de Srair/ Senhaja Sraïr, Senhajiya, Shilha/Shelha (*šše*l*ḥa*), Shilha n Jbala, Tajeblit, Tamazight n Jbala, Tasenhajit. *Shelha* is an Arabic term used for Berber varieties in general (and often, but not exclusively, to Tashelhiyt spoken in the Southwest of Morocco). *Shelha n Jbala* (or *Tamazight n Jbala*) means ‘the Berber of the *Jbala* region’. In Lafkioui (2007a), Senhaja Berber is referred to as “Western Rif”. In the present work, “Western Tarifiyt” refers to the Tarifiyt dialect spoken by the Waryaghel (the area of Al Hoceima).

The most widespread exonym is *Senhaja de Srayer Berber*, which stems from the name of the macro-tribe. As the Westernmost tribes (partly) are found in the mountains of Ketama, the term “Ketama Berber” is also sometimes used. The speakers of Senhaja Berber themselves, however, normally do not refer to their language as “Senhaja”, except for some Berber activists, the most prominent of which is Charif Adardak (see Section 1.6.3). Neither do they use the term *Tamaziġt* (they usually understand Central Moroccan Berber by this term). The most widespread endonym (term used by the speakers themselves) to refer to their language is *šše*l*ḥa* ‘Shelha’.[1] If necessary, one can specify, depending on the (sub-)tribe: Shelha of Ketama, Seddat, Taghzut, etc., or simply “our Shelha” (Ketama: *šše*l*ḥa nna*).

As the term *šše*l*ḥa* is ambiguous, it is not used in this thesis. In this work, the term ‘Senhaja Berber’ is used to refer to all Senhaja Berber varieties, while the term ‘Ketama Berber’ is used to refer specifically to one (Westernmost) of them. Note that the term ‘Ketama’ is confusing as well. The term ‘Berber’ is used here, following a Berberological tradition, and without an intention to offend anyone.[2] See Tilmatine (1995, 1998, 2007) for a study of various terms used to refer to Berber languages, and of their connotations.

1.3. Senhaja de Srayer Tribes

According to most sources, the Ketama tribe belongs to the larger group of Senhaja de Srayer tribes.[3] There are many names and spellings to refer to Senhaja: Aẓnag (PL Iẓnagen), Izenhadjen, Znaga, Zenaga, Sanaga, Senaja, Senhaji, Sanhaja, Sinhâja,

[1] Cf. already in Renisio (1932: X), where the author states that Senhaja speakers do not consider themselves Riffians, do not call their language Tamazight (but Shelha), and call themselves “Chleuh”.

[2] Some Berber speakers take offense at the etymological association of the term *Berber* with the term *Barbarian*.

[3] On tribes of the Rif, see e.g. Coon 1931. On the organization of rural society in Morocco, see e.g. Hoffman 1967 and Hart 2014.

Çanhaja (Julien 1994), Arabic *Ṣanhājah* (صنهاجة). Note that the name Senhaja has an Arabic form, and nobody in the region refers to themselves as Iznagen.[4] It might be a precolonial administrative term.

'Ketama' may refer to:

- a tribe in Kabylia, Algeria (also: Kutama, Kotama, Ikutamiyene, Iktamen...), part of the confederation of the Bavares. It is referred to as *Koidamousii* in the Greek sources (Ptolemy), *Ucutamani* in the Byzantian sources, and *Ukutamanorum* in the Roman sources (Laporte 2005).[5] While the tribe bears the same name as Ketama in Morocco, there is no way to be sure that this is actually the same tribe. This tribe played an important role in the Middle Ages, namely in the creation of the Fatimid empire in the tenth century.
- a tribe living in the Moroccan Rif, bordering on or belonging to Senhaja de Srayer tribe confederation (see Section 1.3 below);
- rural commune 'Ketama' (formerly Tetla-Ketama/Tlata Ketama), or its center (Tlata Ketama, also known as 'Ketama');
- district 'Ketama': the whole region of Ketama mountains including the Ketama tribe (Ketama rural commune) and the Seddat tribe (Issaguen commune, with a capital in Issaguen, which used to be called Ketama at the times of the Spanish protectorate and which is still sometimes referred to as Ketama).

Cognates of the name 'Senhaja' are found in many North African countries (cf. Zenaga in Mauritania). The Senhaja de Srayer tribe agglomeration is not to be confused with other Senhaja tribes, such as Senhaja-de-Gheddou and Senhaja-de-Mesbah in the Jbala region (south of Ketama and north of Taounate and Taza), which are Arabic-speaking.[6] The origin of the Senhaja in the north of Morocco is not easy to trace. Renisio (1932: X) cites Michaux-Bellaire, who thinks that the Senhaja came from the South of Morocco, and Gautier, who thinks that Zenata invasion cut Senhaja into two, one that is found in Algeria (to the East of the Kabyles), and one in the West of Morocco. Cf. also Colin 1929. This hypothesis implies that the Senhaja are not part of the Zenata tribe.[7] Biarnay (1917) also speaks about the distinction of Zenata vs. Senhaja. In this

[4] See Kossmann 2013a: 196-197 regarding *h* in the term Senhaja. While Ibn Khaldun considers *h* a later addition to the Berber word in order to adapt it to the Arabic language (Ibn Khaldoun 1852-1856: ii), Kossmann argues that *h* is original, and was subsequently lost in the Berber forms (Iẓnagen etc.).

[5] The final *-orum* is a case ending here.

[6] See Renisio 1932: 272-273 for a text in Bunsar Senhaja variety on 'Why Senhaja de Srair are called like this'.

[7] The term *Zenatic* used in Berber linguistics is an arbitrary term, not meant to refer to the Zenata tribe.

study, Senhaja is defined as an ethnolinguistic group in Northwestern Morocco. The historical implications lie beyond our research.

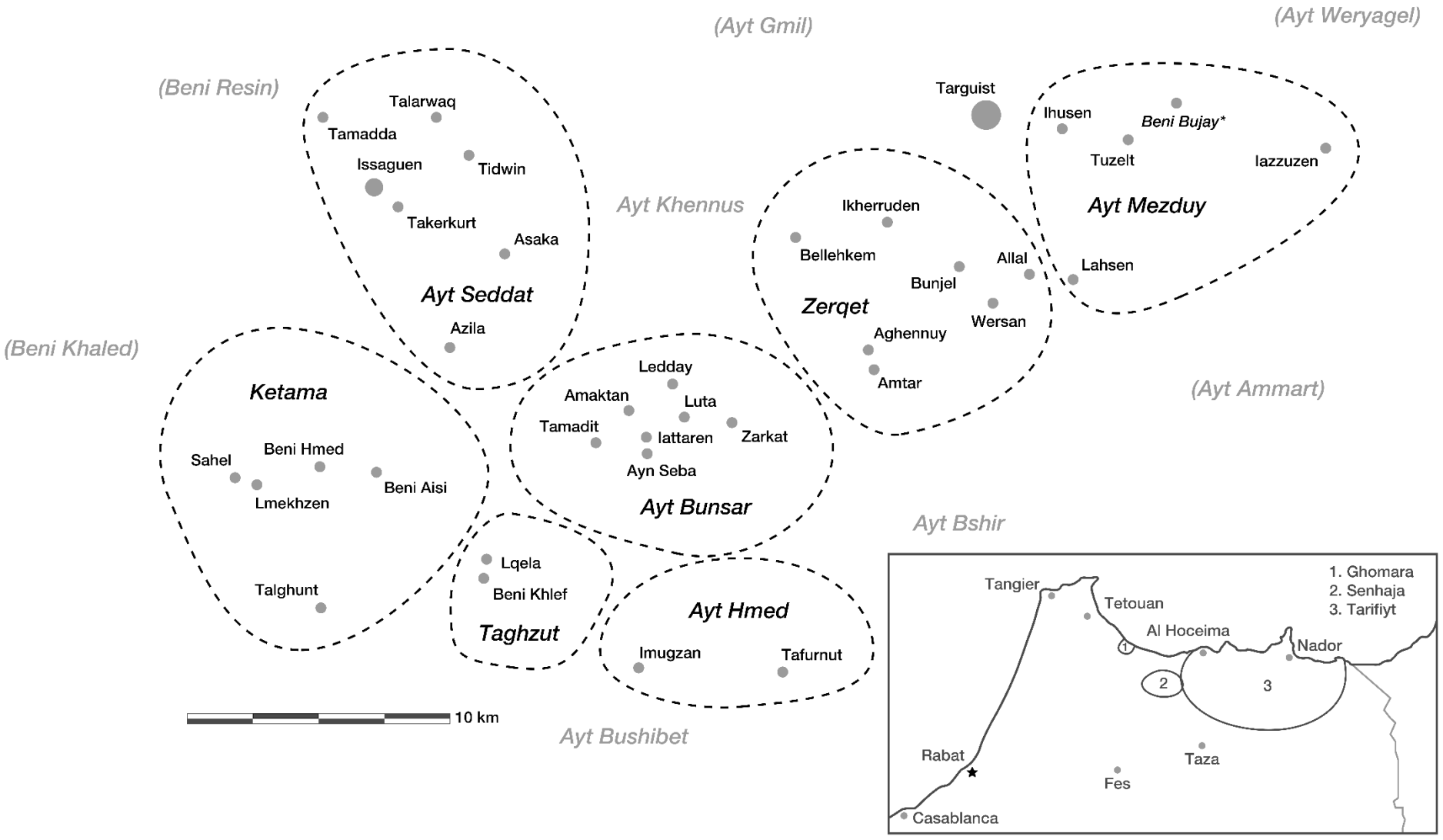
On the West, Senhaja de Srayer borders on the Ghomara tribes. The Ghomara macro-tribe (consisting of nine tribes in the province of Chefchaouen) includes two Berber-speaking tribes: Beni Bouzra and Beni Mensour (partially Berber-speaking). These tribes are separated from the Senhaja by Arabic-speaking tribes (Beni Rezin and Beni Khaled, near Bab Berred). To the north and to the east of Senhaja de Srair, one finds Berber tribes speaking other Berber varieties. These tribes are Gmil and Bufrah (Bufraḥ) to the north, and Ammart (ɛammart) to the east. The tribe of Mezduy is between Senhaja and Tarifiyt both geographically and linguistically. It can be said to form a bridge between Senhaja and Tarifiyt.

According to Renisio (1932: 9), the agglomeration of Senhaja Srayer consists of the following nine branches (traditionally referred to as "tribes"): Ketama, Seddat, Taghzut, Bushibet (mostly Arabized), Hmed, Bunsar, Khennus, Zerqet, and Bshir.[8] Some sources (see e.g. Lafuente 1942, Cabello Alcaraz 1951, Mikesell 1985, Adardak 2016) also include Mezduy, making ten tribes in total. As mentioned earlier, some sources exclude Ketama from Senhaja. There are also sources that include Targuist. Nowadays, Targuist is better understood to be a small city comprised of individuals of various tribal identities. Not all individuals refer to themselves as part of Senhaja; rather, they commonly use the name of their tribe only ('Ketama', 'Seddat', etc.). As Mourer (1968) noted, "tribal affiliation is a matter of identity".

The data for this thesis come from 35 villages across seven tribes (Ketama, Seddat, Taghzut, Hmed, Bunsar, Zerqet, and Mezduy). Cf. Appendix 2 for the geographical coordinates and the list of the villages. The map on the following page shows the location of the tribes and the villages in question.[9] The names of the remaining three Senhaja tribes are given in gray. The names in parenthesis are the neighboring non-Senhaja tribes. The village of Bujay is written in Italics and marked with an asterisk because linguistically, it is not part of Senhaja.

[8] Cf. also Hoffmann 1967. In the names of the Berber tribes, usually, the initial element *Ayt* ('sons of') is included. The element *Ayt* is a Berber equivalent of the Arabic *Bni* ('sons of'), cf. Section 6.5.5. In Senhaja, the Berber *Ayt* and the Arabic *Bni* are used interchangeably. Thus, the Senhaja tribes that contain *Ayt* (e.g. *Ayt Bushibet, Ayt Hmed*, etc.), can also be referred to as *Bni* (*Bni Bushibet*, *Bni Hmed*, etc). In fact, *Bni* is more widely used by the Senhaja Berber speakers than *Ayt*. In this thesis, the element *Ayt* (~*Bni*) in the names of the tribes is omittied. The village Beni Hmed within Ketama is referred to as 'Beni Hmed', to avoid confusion with the (Ayt/Beni) Hmed tribe with the center in Imugzan. Pan-Senhaja forms are marked as 'pan-Snh.', 'Snh.' in lists and tables.

[9] I thank Guido Suurmeijer for his help in the preparation of this map. Geographical coordinates of the villages can be found in Appendix 2.


(Ayt Gmil)
(Ayt Weryagel)
(Beni Resin)
Talarwaq
Tamadda
Issaguen
Tidwin
Takerkurt
Asaka
Ayt Seddat
Azila
Ayt Khennus
Targuist
Ihusen
Beni Bujay*
Tuzelt
Iazzuzen
Ayt Mezduy
Ikherruden
Bellehkem
Allal
Lahsen
Bunjel
Zerqet
Wersan
Aghennuy
Amtar
(Ayt Ammart)
(Beni Khaled)
Ketama
Sahel
Beni Hmed
Beni Aisi
Lmekhzen
Talghunt
Ledday
Amaktan
Luta
Tamadit
Iattaren
Zarkat
Ayn Seba
Ayt Bunsar
Lqela
Beni Khlef
Taghzut
Ayt Hmed
Imugzan
Tafurnut
10 km
Ayt Bushibet
Ayt Bshir
Tangier
Tetouan
Al Hoceima
Nador
1. Ghomara
2. Senhaja
3. Tarifiyt
1
2
3
Rabat
Taza
Fes
Casablanca

1.4. Administrative Division and Demographic Data

The Senhaja macro-tribe is situated in the province of Al Hoceima. Prior to 2015 (from 1997 to 2015), the province of Al Hoceima led the Taza-Al Hoceima-Taouanate region (one of the sixteen regions of Morocco). The region consisted of the following provinces: Al Hoceima, Taounate, Taza, and Guercif. In 2015, the administrative division changed. According to the new division, the province of Al Hoceima (including Senhaja) now belongs to the Tanger-Tetouan-Al Hoceima region (one of the twelve regions of Morocco, with the capital in Tangier). This territory consists of two prefectures (Mdiq-Fnideq and Tangier-Assilah) and six provinces (Al Hoceima, Chefchaouen, Fahs-Anjra, Larache, Ouezzane, and Tetouan). Each province is subdivided into arrondissements, municipalities (*communes*) in urban areas and districts (*cercles*) in rural areas. Districts are subdivided into rural municipalities (*communes rurales*). The largest cities in Al Hoceima province that are populated by the Senhaja tribes are Issaguen (capital of the Seddat tribe) and Targuist (populated by several Senhaja tribes, see 'Targuist' below). The following table lists data from 2014 census for the Senhaja communities (HCP 2014).

Demographic data from 2014 census

Province, Cercle, Commune	Households	People
Province: Al Hoceima	**79.326**	**399.654**
Targuist (Municipalité)	2.969	13.390
Cercle : Targuist	**8.618**	**50.317**
Bni Hmed Imoukzan	1.519	9.086
Bni Bchir	1.017	6.527
Bni Bounsar	1.242	7.660
Zarkt	1.160	6.691
Cercle : Ketama	**17.066**	**97.903**
Abdelghaya Souahel	4.140	25.817
Bni Bouchibet	1.530	9.032
Issaguen	3.267	17.095
Center: Issaguen	710	2.474
Ketama	3.255	17.351
Moulay Hmed Cherif	1.585	9.765
Taghzout	966	5.132
Tamsaout	2.323	13.711

1.5. Geography and Dialectology

This section lists major villages and centers of each Senhaja tribe, as well as names of major language consultants for each variety.

1) Ketama (*Iḵuṭamen*)

Villages

There are seven Berber-speaking villages in what is known as the Ketama (Ikuṭamen) valley: Beni Aisi, Beni Hmed,[10] Sahel, Lmekhzen, Asammar, Talghunt, and Zgara. The data for this work were predominantly collected in Beni Aisi (Arabic: *bni ɛisi*; Berber: *ayṭ ɛaḵsi*) and Beni Hmed (Arabic: *bni ḥmed*; Berber: *ayṭ ḥmeḏ*). Dialectal differences with Sahel, Lmekhzen, and Talghunt are sometimes noted. Lafkioui 2007a covers the villages of Sahel, Lmekhzen, and Asammar. The major language consultants for the present work are: families El Bouzidi, Aghzout, El Morabit, Haoumalik (Beni Hmed), El Atallati, Chniwal, Aharmouch, Arfouy (Beni Aisi), Amattach (Sahel), El Hadrati (Lmekhzen), and Suwani (Talghunt). The remaining villages of the Ketama region are Arabic-speaking, e.g. Takusht (counted among the Berber-speaking villages in Renisio 1932), Tlata (Tlata d Ketama ~ Ketama), Tamlawggit, Wahshiyet, Griha, etc. There are two centers within the Ketama tribe: Ikawen (administrative center for Beni Aisi and Beni Hmed villages, the "capital" of Abdelghaya-Souahel municipality) and Tlata, the "capital" of Ketama commune. Tlata Ketama was officially renamed as 'Ketama' in 1963 (which can cause confusion with 'Issaguen', the capital of Seddat, previously known as 'Ketama').

The closest market to the Ketama valley is in Ikawen (on Saturdays). Alternatively, one could also go to Tlata Ketama (on Tuesdays). The market of the neighboring Taghzut tribe (Tuesday) is also near, but it is very small, so people from other tribes do not go there. The biggest market takes place in Issaguen (Thursday), which is the capital of Seddat tribe.

Demography

The Ketama Berber villages (and the neighboring Arabic-speaking villages) belong to the rural commune of *Abdelghaya Souahel*, within the larger *cercle* of Ketama. At the time of the 2004 census, the commune had a total population of 24,013 people living in 3337 households (HCP). In 2014, the population of this commune was 25,817

[10] As mentioned previously, the village of Beni Hmed within the region/tribe of Ketama is not to be confused with the Senhaja tribe Beni (Ayt) Hmed (center: Imugzan) bordering on the Bushibet tribe (see below).

people. The number of speakers of Ketama Berber can be roughly estimated at ca. 17,000, living both inside and outside their commune.

Within the *cercle* Ketama, there is a separate rural commune 'Ketama' with a center in Tlata (Tlata d Ketama, now officially 'Ketama'), including Arabic-speaking villages (Azaghar, Wahshiyit, Tamlugit). As noted above, the term 'Ketama' is variously used to refer to Tlata, Issaguen, the Ketama tribe, and the entire region.

Dialectology

The Berber variety of Ketama is particularly interesting, especially in the behavior of the verbal clitics. There is full mutual intelligibility among Ketama Berber-speaking villages, but there are also some dialectal differences, even though the geographical distance between the villages is quite small. Differences are found in all language realms:

- pronunciation, e.g. the term for 'egg': Beni Hmed *awfilṯ,* Beni Aisi *agfilṯ*;
- morphology: the preverbal negator *u* is usually present in Beni Aisi, while it can be often omitted in the remaining villages;
- syntax, e.g. the placement of verbal clitics in specific contexts (see Chapter 13): Beni Aisi and Beni Hmed villages usually split the IO + DO clitic complex, so that only the IO clitic is fronted. In Lmekhzen, there is a construction with a dummy DO. Finally, in Sahel, both pronominal clitics are usually fronted;
- lexicon, e.g. 'female mule': Beni Hmed *aserdunṯ*, Beni Aisi *lebhima* (< Ar.), Talghunt *ddabba* (< Ar.).

Some other examples of dialectal differences among Ketama villages include:

- 'cinders, ashes': Beni Hmed *akffus*, Beni Aisi *ayfus*;
- 'woman, wife': Asammar/Sahel/Talghunt *(ṯ)amṭṭuṯ*, Lmekhzen/Beni Hmed/Beni Aisi/Zgara *(ṯ)amġarṯ*;
- 'wait': Beni Hmed *sagum*, Beni Aisi *sagem*; cf. 'wait for me': Beni Hmed *sawgm = ay*, Beni Aisi *sagm = ay*;
- 'I love': Asammar/Sahel/Lmekhzen *tarri-ġ*, Beni Hmed/Beni Aisi/Talghunt/ Zgara *ḥemmi-ġ*;
- 'I called': Asammar/Sahel/Lmekhzen/Talghunt *laġi-ġ*, Beni Hmed/Beni Aisi *nedh-a*, Zgara *laġi-ġ* ~ *nedh-a*;
- adverb 'now': Asammar/Sahel/Lmekhzen *derwaḫ*, Beni Hmed *ḏruḫ*, Beni Aisi *luḫ*, Talghunt *daba*, Zgara *ḏrux* ~ *derwaḫ*;
- preposition 'to': Asammar/Sahel/Talghunt *la*, Lmekhzen *ḏa*, Beni Hmed/Zgara *ar*, Beni Aisi *ar* ~ *al*;
- 'in it' (preposition 'in' + 3S pronoun): Beni Hmed *geyy-es*, Beni Aisi *gig-es*.

2) Seddat (*Ayṯ Seddaṯ*)

Villages

Major villages in the Seddat region include: Azila, Tamadda, Talarwak, Tidwin, Stah, and Igersif.[11] The center of Seddat tribe is Issaguen.[12] Issaguen is situated on the intersection of roads Chefchaouen-Al Hoceima (N2) and the road to Fes (R509), which also goes through Tlata d Ketama. As mentioned previously, Issaguen is sometimes referred to as 'Ketama', as Tlata d Ketama and the whole region.

Demography

At the time of the 2004 census, the commune of Issaguen had a total population of 15,425 people, with 1,628 living within the town of Issaguen itself. In 2014, there were 17,095 people, with 2,474 in the town.

Dialectology

There are some dialectal differences among Seddat villages, e.g. in pronunciation (/t/ > /ṭ/ in Talarwak) and in verbal morphology (3MS verb prefix has different realizations in different dialects), as well as in negation.[13]

As Issaguen is bigger than centers of the Ketama tribe (Ikawen and Tlata), it is also an exterior center for the Ketama people (e.g. for higher education). Ketama speakers who travel often to Issaguen and who are regularly exposed to Seddat Berber, sometimes learn it as a second Berber variety, and thus have no problems understanding it. However, Seddat speakers who have not travelled to the Ketama region, cannot understand Ketama Berber variety easily. A certain degree of mutual understanding is helped by the high percentage of Arabic loans in both (and in all) Senhaja varieties. Of course, there is also shared Berber vocabulary. However, different varieties underwent different sound changes, which impedes the mutual understanding for those who have not had a long exposure to the different dialects. As with other closely related varieties, one can find many "false friends" in Ketama and Seddat. For example, *aḥčiw* means 'boy' in Ketama and 'something dirty' (MS) in Seddat and in most other Senhaja varieties.

[11] All Seddat villages (wrongly) are counted as "Arabophone" in Renisio.

[12] See Gonzalez Ruso 2014 on the history of this town.

[13] There are three different markers of 3MS in Tidwin, depending on the context: *ḏ-* is found in the Aorist following the future/irrealis marker *(š-)a*; *Ø* is found in Perfective Negative following the negator *ur*; and *y-* is found in Imperfective Negative following the negator *ula*.

3) Taghzut (*Ṯaġzuṯ*)

Villages

Major Berber-speaking villages in Taghzut region are Lqela (*Lqelɛa*), Ssaqya, Beni Khlef, Bekkar, Ulad Wartit, and Iguraren. Taghzut has one Arabic-speaking village: Tiririn. The center is Ulad Wartit, which hosts a hospital and weekly market. Major consultants for this thesis include the families El Marwani-El Idrissi and El Khalifi from Lqela, and Sofia El Marwani from Beni Khlef.

Demography

At the time of the 2004 census, Taghzut commune had a total population of 5,115 people living in 912 households (HCP). In 2014, there were 5,132 people living in 966 households. Thus, the overall population has remained stable, while families tend to become smaller.

Dialectology

There are two major dialect groups within Taghzut: Lqela vs. the rest. In Lqela, phoneme /ṯ/ as a prefix (used as a feminine nominal prefix and a verb subject prefix of 2S/3FS/2P) is preserved, while it changes to /h/ ~ Ø in other villages, e.g. 'fig': *ṯazarṯ* in Lqela vs. *(h)azarṯ* in other villages (as in Ketama). Also, 1SG verb marker *-ġ* is preserved in Lqela, while in other villages it became *-a* (as in Ketama). Taghzut (Lqela) variety is more spirantizing than Ketama, so that Ketama's /b/ corresponds to /ḇ/ in Lqela. In Lqela, /t/ is realized as /ṭ/ (as in Hmed and in Talarwak dialect of Seddat). Furthermore, Ketama /y/ (< */l/) usually corresponds to /ž/ in Taghzut (e.g. 'heart': Ketama *uy~ wiyyi*, Taghzut *už*). These and other phonetic changes make Taghzut Berber sound quite different from Ketama, and it is often difficult to understand for the neighboring Berber tribes.

As is the case with Ketama and Seddat, there are many examples of "false friends" between Ketama and Taghzut, e.g. Ketama *(ṯ)amġarṯ* 'woman, wife' vs. Taghzut *(ṯ)amġarṯ* 'mother-in-law', 'husband's mother' (the word for 'woman' in Taghzut is *(ṯ)amṭṭuṯ*). Cf. also Ketama *aġeddu* 'grape tree' vs. Taghzut *aġeddu* 'fig tree' (the word for 'grape tree' in Taghzut is *(ṯ)aḏewerṯ*), and there are many more of such examples.

4) Bushibet (*Ayṯ Bušibet*)

The major villages in Bushibet are El Khendaq and Ttefah (both Arabic-speaking). Renisio (1932) also lists Taberrant and Ibezzazen (also Arabic-speaking). This tribe is almost entirely Arabized: the only Berber-speaking village is Tarya (Lafkioui 2007a). No fieldwork by the author was conducted in the area. All the information in this thesis about the Berber of Bushibet tribe comes from Lafkioui 2007a. At the time of the 2004 census, the commune had a total population of 8,102 people living in 1,285 households (HCP). The 2014 census reports 9,032 people in 1,530 households.

5) Hmed (*Ayṯ Ḥmed*)

The administrative center of Hmed is Imugzan. Berber-speaking villages can be divided into two major dialect groups: 1) Imugzan, Irebji, Mazuz, Tafurnut, Asensu, Tamyan(d)ast, Uḍi (the name comes from the word *hotel*), Afeggay, Iqraren, Buyenduz; and 2) Bumsahel ~ Lehlaf, Tafza, Awni. There are also villages that are Arabic-speaking, e.g. Amazzer, Alwan, Adrirwen (Berber name: Addar Iyerwi), Zzawiya, Iqraren, Almu. In some villages, there is a mix of Arabic and Berber, e.g. Afkay, Lbedma. At the time of the 2004 census, the commune had a total population of 8,949 people living in 1,355 households. In 2014, there were 9,086 people in 1,519 households.

The major language consultants for the present book are the families Aarab from Imugzan, and El Mettichi and El Chikh from Tafurnut. The variety of Mazuz (from the same dialect group) is covered in Lafkioui 2007a. Within each dialect group, there are still some differences, e.g. Imugzan *ani-s da ṯelliḏ?* vs. Tafurnut *ani-s ṯelliḏ?* 'Where are you from?'; Imugzan *kkeyd lbal* ~ *rgbb-id-iyyi!* vs. Tafurnut *ṣṣaḥed-iyyi!* 'Look at me!'.

The name of this tribe is homophonous with the name of the village Beni/Ayt Hmed in the region of Ketama. In the present book, to avoid confusion, 'Hmed' is used to refer to the tribe, and 'Beni Hmed' (B.H.) to the village in Ketama. It must be kept in mind, however, that the Berber speakers from the Hmed tribe and from Beni Hmed village refer to their tribe/village by the same name. When necessary to clarify, the Hmed tribe is described by the speakers as "Hmed of Bushibet" (as it borders on the Bushibet tribe), or "Hmed Imugzan" (after its center), while Beni Hmed village is described as "Hmed of Beni Aisi" (as it is near Beni Aisi village). There are also multiple entities of the name "Beni Hmed" outside the region of Senhaja. The Berber of the Hmed tribe is in many ways different from Ketama Berber (and thus of the village Beni Hmed).

6) Bunsar (*Ayṯ Bunsar*)

Villages

Berber-speaking villages in this region include Luta (Luda), Amakdan, Iattaren, Tamadit, Zarkaṯ, and Izurdaz, better known as Shurfa, consisting of Shurfa and Shurfa Ssaqya.[14] The center of the tribe is Tuggit (Arabic-speaking), which is the place of the market, now better known as Lhed (because the market day is Sunday). Major language consultants for the present thesis are: the families Ahtit (Luta/Tamadit), Dardak (Iattaren), Slimani (Tamadit), Elkhadiri (Zarkat), and a group of students in Martil: Ezzaghouani, Mahboub, Elbarradi, Ettahiri (all from Amakdan), and El Majjaoui and Elbakouri (from Luta).

Bunsar is geographically the center of the Senhaja tribe agglomeration, whose borders touch practically all Senhaja tribes except for Bushibet and Mezduy. Many Bunsar villages outside the center (Lhed) have primary schools; for secondary education, students go to Lhed. Some individuals from the neighboring Hmed tribe also go to Lhed for the secondary education. For higher education, in the past (before 2015), Bunsar and most Senhaja students went to study in Oujda. Since 2015, after the administrative division changed, Bunsar students normally go to study to Tétouan/Martil or Tangier. In 2016, there were 32 students from Bunsar in Tétouan/Martil and Tangier. Note that Ketama students (unlike those of Bunsar/the rest of Senhaja) usually go to study in Fes.

Demography

At the time of the 2004 census, the Bunsar commune had a total population of 8,112 people living in 1,123 households. In 2014, there were 7,660 people living in 1,242 households.

Dialectology

There are some dialectal differences among Bunsar villages, for example:

Luta, Amakdan, Iattaren	**Tamadit**	**Translation**
adu	*addu*	‘come’
yella nadu	*yella nddu*	‘let’s go’
ḵem, ḵemmi, ḵemmini	*ḵem, kemmi*	PRON 2FS
nekkini	*nekki*	PRON 1S

[14] The village Luta is not to be mixed up with Luta (Louta) within Waryaghel tribe and another one in Nador province. The village of Zarkat is not to be mixed up with the Zerqet tribe: both can be spelled <Zarkat> in some sources and by the speakers themselves.

Some differences between Luta and Amaktan include:

Luta	**Amaktan**	**Translation**
baba nnem	*babi-nnem*[15]	your (FS) father
baba nneḵ	*babi-nneḵ*	your (MS) father
nanna	*ḥenna*	grandmother
ğağa	*ɛetti*	paternal aunt
swa	*syya*	from here

7) Bshir (*Ayṯ Bšir*)

Renisio lists as main Berber-speaking villages: Imsed, Oudil, El Qoura, Tasasnout, Bou Hadi, Igouriden; Arabic-speaking: Tadiacht, Tagounit, Feddan Mana. The village treated in Lafkioui 2007a is Tizirt. No fieldwork was conducted in the area by the author. At the time of the 2004 census, the commune had a total population of 5,959 people living in 851 households. In 2014, there were 6,527 people in 1,017 households.

8) Khennus (*Ayṯ Ḫennus*)

In the region of Khennus, Renisio lists: Ledday, Igraimiyen, Bou Atta, Tizi Khattab, Tigraou, Tayman, Ikhadiren, Tamsiyet (all Berber-speaking). The village treated in Lafkioui 2007a is A'raben. No was conducted in the area by the author. Administratively, Khennus tribes falls within the *cercle* Ketama (mostly corresponding to commune Moulay Hmed Cherif). At the time of the 2014 census, the commune had a total population of 9,765 people.

9) Zerqet (*Zerqeṯ*)

In the region of Zerqet, Renisio lists as Berber-speaking villages: Bellehkem, Ikherruden, Wersan, Ifellihen, Afrag u Aish, Amlal, Agouni, Adjab, Bunjel, Almu n Teizirt, Iyermallet, Amtar, Tighza, Smaet, Igedman, Timilukt, Bou Qeruash. The political center is in Timdiqit (Berber-speaking). The villages treated in Lafkioui 2007a are Aghennuy and Wersan. Among Arabic-speaking villages are, for example, Lqitun and Hmaid. At the time of the 2004 census, the commune had a total population of 6750 people living in 1048 households. In 2014: 6,691 people in 1,160 households.

[15] The symbol ˆ indicates that *babi* is not used in Bunsar as an independent word for 'father' (which is *baba* as elsewhere) but it becomes *babi* when used in combination with possessive pronouns.

The major consultants from Zerqet for this thesis include: the families Atouf from Ajal, Ahrar and Elmorabit from Ikherruden and Bellehkem, Abdellah Igalla from Aghennuy, El Ayadi from Bunjel, Rhimu from Wersan, as well as Zerqet students in Martil: Ahitour, Charrah, and Belhaj, all from Amtar. In 2018, I was fortunate to meet Jonathan Byler, an American based in Targuist and familiar with the Zerqet dialect.

10) Mezduy

The Mezduy tribe is located in the rural commune of Sidi Boutmim. At the time of the 2004 census, the commune had a total population of 10,242 people living in 1,689 households. In 2014, there were 9,988 people living in 1,831 households.

Mezduy is a Berber-speaking tribe whose language variety is rather close to Tarifiyt. This is not unexpected, as Mezduy is the immediate neighbor of the Ammart (Rif Berber) tribe, and it has tight economic relations with the Rif (Waryaghel). Mezduy thus forms a bridge between Senhaja and Tarifiyt Berber. The villages treated in Lafkioui 2007a are: Bu'di and Budjay (separated by the river, Oued Ghis). Renisio 1932 does not list Mezduy as part of Senhaja. The speakers of Mezduy tribe self-identify as Senhaja. As demonstrated by Lafkioui (2007a), the dialects of the two villages on different sides of the river differ considerably, so Mezduy has at least two major dialect groups.

The major language consultants for the present thesis from the Mezduy tribe come from the villages of Tuzelt (Taibi family), Lhasen (Bouchmal family), and Ihusen (Lachehab family). It must be also noted that there is at least one village within the geographical borders of the Mezduy tribe where a Berber variety close to Tarifiyt is spoken. This village is Beni Bujay (also known as Ulad Elhani, listed as 'Bujay' in this thesis). In the village of Beni Buzemmur, the majority speak Mezduy variety, while a minority speak a variety close to Tarifiyt. It is believed that their ancestors came from Tuzin/Midar (Central Rif).

11) Targuist

The town of Targuist is on the border between the Senhaja and Rif Berber tribes. It is also the border of the Jbala region. Targuist is the largest town in the region and could be considered the capital of Senhaja. In 2004, it had a population of 11,560. In 2014, Targuist as a municipality counted 13,390 people and as a *cercle*: 50,317. The *cercle* of Targuist unites a number of rural communes and tribes, some of which are Senhaja (Hmed, Bushir, Bunsar, Zerqet), and some are not (e.g. Ammart).

The village ‘Azza in the vicinity of Targuist is treated in Lafkioui 2007a. According to the data in Lafkioui (2009a, 2009b, 2011a), this dialect is of the Eastern Rif type. However, most original dwellers in the vicinity of Targuist (e.g. Azza, M’ellmin, Issa, Isma’len, and east beyond Sidi Boutmim) are actually Arabic speaking.

1.6. Culture and Sociolinguistics

1.6.1. Number of Speakers

Senhaja Berber was erroneously declared dead several times, e.g. *Ethnologue* 15 (2005) and *Ethnologue* 16 (2009). In the later editions (*Ethnologue* 17 (2013), *Ethnologue* 19 (2016)), the status of the language has been changed to “living” (“threatened”) and the number of speakers was estimated at 50,000, which is not a reliable figure. On the basis of Moroccan census data from 2014 cited above, the number of Senhaja speakers can be estimated at ca. 85,000. The following table shows an estimated number of speakers for each Senhaja variety.

Estimated number of Berber speakers for each Senhaja tribe

Name of tribe	**Notes**	**Estimated number of Berber speakers (ca.)**
Ketama	mixed (Berber and Arabic- speaking)	17,000
Seddat	majority Berber-speaking	17,000
Taghzut	majority Berber-speaking	5,000
Bushibet	majority Arabic-speaking	(-)
Hmed	majority Berber-speaking	9,000
Bunsar	majority Berber-speaking	7,000
Bshir	majority Berber-speaking	6,000
Khennus	majority Berber-speaking	9,000
Zerqet	majority Berber-speaking	6,000
Mezduy	majority Berber-speaking	10,000
Total		ca. 85,000

1.6.2. Language Situation and Language Attitude

While Senhaja Berber has been declared dead, not much language recession is directly observed among the younger generation in the Berber-speaking villages where the fieldwork for this thesis was conducted. In these villages, few people speak only Arabic. When Berber speakers move to an Arabic-speaking village (due to migration,

work, marriage, etc.), they usually switch to Arabic. Children who grew up in Arabic-speaking towns and cities usually grow up speaking only Arabic.

In spite of Arabization, there is no strong pejorative attitude towards Senhaja Berber among its speakers. The attitude of usual Senhaja Berber speakers to their language is neither positive nor negative (they are neither ashamed, nor proud of it). When they learn that there is a foreign linguist interested in their language, they consider it their duty to explain that studying their language is not extremely useful, as it is hardly spoken or understood outside their region. However, at the same time, they can be positively surprised and happy that someone coming from outside is interested in their language, and they are generally eager to share the knowledge of their language.

1.6.3. Language Status

Berber has the status of a national language in Morocco. However, it is the "Moroccan Standard Tamazight" which is meant. The standard Berber is based on three large Moroccan Berber varieties (Tashelhiyt, Middle Atlas Berber, and Tarifiyt). Senhaja speakers find it difficult to follow TV broadcasts in standard Berber (or in any of the major Moroccan Berber languages).

Senhaja Berber speakers are usually not engaged in the Amazigh Cultural Movement. This is probably because they are cut away from the rest of the Berber world (and even from the Moroccan society), due to various reasons: geographic isolation in the mountains, the economic situation (their region being the center of cannabis cultivation), prejudice against them, the fact that they are overlooked by Berbers from other regions, and so on. There are only a few Berber activists working to promote the Senhaja region. Recently, an association "Amazighs of Senhaja of the Rif" was formed. The most active members of this association include Charif Adardak, Iliasse Aarab, Mounir Aghzennay, Mohamed Ben Abdellah Aghzout, Mohamed Benyahia and a few others. Their activities include, among others, publication of the magazine *Tidighine* devoted to the cultural and linguistic heritage of Senhaja. Adardak has several publications devoted to the Senhaja (Adardak 2016a, 2016b, 2017, 2019).

1.6.4. Writing Senhaja Berber

Senhaja Berber is rarely written. While its (younger) speakers are usually able to write Arabic and sometimes also French, they are not used to write their own language, and the idea of writing it sometimes seems awkward to them. In the rare cases where they

write their language, they do it either in Latin or in Arabic script.[16] When Senhaja Berber is written in computer-mediated communication (CMC), e.g. on Facebook/ Messenger or Whatsapp, it is usually written in Latin script.[17] Some data containing Senhaja Berber written by native speakers were gathered by the author.[18]

Tifinagh script is practically never used by Senhaja Berber speakers, except for some rare cases by Berber activists (e.g. some publication titles in the *Tidghine* magazine). When Senhaja is written in Latin script, many consonants are under-represented, as there are no equivalents in the Latin script. The central vowel *schwa* is either written as *a*, or not written at all. Numbers are sometimes (but not consistently) used to represent some sounds. One may find, for example:

2 = ’ = ء	5 = ḫ = خ	7 = ḥ = ح
3 = ɛ = ع	6 = ṭ = ط	9 = q = ق
4~8 = ġ = غ		

Symbol *x* is used to represent *š* in Northwestern Morocco/Jbala region (whether writing Berber or Moroccan Arabic).[19] In the rest of Morocco, *ch* is used (based on French orthography). In this book, the IPA [χ] is spelled with *ḫ* rather than with *x*, to avoid confusion among the native speakers (when they wish to read transcriptions of their texts). In Moroccan CMC, the sound [χ] is usually written either with a number <5>, or as a digraph <*kh*>.

1.6.5. Berber and Arabic

Practically all Senhaja Berber speakers are bilingual (including children), speaking both Berber and dialectal (local) Moroccan Arabic (“Darija”). Some individuals are “less bilingual” than others, i.e. some might be more comfortable speaking Berber than Darija. Senhaja speakers regularly code-switch between Berber and Darija in everyday conversations, phone calls. Impressionistically, this code-switching is stronger in Western Senhaja than in Eastern Senhaja. Code-switching also occurs in fairy tales, where some lines and formulas are normally cited in Arabic, e.g. the introduction

[16] On writing ‘Shelha’ in Southwestern Algeria, see Souag 2014. On Tarifiyt orthography, see Lafkioui 2002a.

[17] See also Tahiri (2015a, 2015b, 2016) on writing (Tarifiyt) Berber in CMC-context.

[18] Cf. https://academia.li/gutova/senhaja-texts-written-by-speakers.

[19] This tradition stems from the Spanish protectorate period, as in Spanish orthography, *x* is used to note the sound *š* [ʃ] in foreign words and place names, e.g. *Xauen* for [ʃawn] (Chawn, Chefchaouen).

formula *sir la ṯaf* ('go without being afraid'). It turned out to be difficult to collect oral poetry and songs in Berber, as those are often entirely in Arabic. There are some modern writers/poets in the region who write in Berber.[20] Songs that accompany different ceremonies (such as birth, death, marriage, etc.) are sung in Arabic. Jokes are typically told in Arabic, too, although one may also occasionally hear a joke in Berber. Of course, bilingual speakers have no problems translating a joke or a fairy tale to Berber, even if they have originally heard it in Arabic.

Code-switching (CS) is sometimes less and sometimes more difficult to distinguish from borrowing. Generally, in this book, judgments of native speakers were followed in order to decide what to consider "Berber" as opposed to "Arabic", especially in cases when the question "Is the use of an Arabic word obligatory?" could not be answered easily. There are still some cases where it is difficult to decide whether the person spoke Berber or Arabic. In any case, the use of Arabic (loans, constructions, and entire sentences) is an integral part of Senhaja Berber, and it can be characterized as a language that has undergone extreme influence of Arabic.

Both the lexicon and the grammar of Senhaja Berber have been greatly influenced by Arabic. Examples of language influence are numerous (see Section 1.9). In some cases, two terms (one of Berber and the other one of Arabic origin) exist next to each other. In a few cases, there is a difference between old people and young people's speech, which shows an ongoing lexical replacement of Berber terms by Arabic equivalents (e.g. terms referring to colors in the speech of Bunsar).

As the study of borrowings shows (see Section 1.9.1), even the so-called "basic lexicon" did not resist borrowing. There are both integrated and non-integrated loans in Senhaja Berber. Borrowing is quite common in Berber languages in general (cf. Kossmann 2010; 2013). Senhaja borrows lexemes belonging to any word class from Arabic. Borrowed verbs are always integrated in Berber verbal morphology. Borrowed nouns may be integrated in Berber nominal morphology, or may keep their original (Arabic) morphology. Borrowed adjectives and participles normally keep their original morphology, while Berber verbal affixes may be applied to them in the Taghzut variety, thus incorporating them in the Berber verbal class.

[20] See https://academia.li/gutova/senhaja-poems for some examples.

1.7. Life in the Ketama Region

Main Occupations in the Region

Ketama (Tlata Ketama, Issaguen, and the entire area) is known as "Morocco's capital of cannabis". Numerous studies are devoted to this topic.[21] Indeed, the main source of income for the local population is growing cannabis (*kif*). Contrary to the widespread belief, this does not mean that the local population is rich. Indeed, the farmers working on the land are usually not the ones who profit the most from their produce.

As it is usually the women who do most of the work in the field, the situation in the Senhaja land is unusual for Morocco in that it is the women who earn (or more precisely, work to make) money. Although women spend a lot of time producing kif, they never use it, while it is quite common for men. The local population has mixed feelings and opinions about cannabis. One Ketama woman summarized it as follows: "Kif is our everything; it is our blessing and our curse; it is the source of our bread and the source of evil".

Besides cannabis, Ketama people also grow wheat, barley, lentils, beans, and some vegetables. Some people keep livestock (mostly sheep, sometimes also goats, rarely cows). Besides crops and livestock, Ketama has beautiful mountains covered with cedar trees, with magnificent views. However, few visitors come to the region, and travelling in this region is in fact not easy due to the lack of infrastructure (see Adardak 2017 on tourism in the Senhaja land). The biggest city within Ketama district is Issaguen. As mentioned above, Issaguen is situated on the intersection of roads Chefchaouen-Al Hoceima (N2) and the road to Fes (R509) Apart from these two roads (which are narrow and winding), there is little infrastructure in the region. Smaller roads, leading to the villages of Beni Hmed and Beni Aisi, can be blocked by snow in winter. Temperatures below zero are quite common in Ketama, and winters can be very harsh.[22]

Beni Hmed and Beni Aisi

The village of Beni Hmed has around 400 families. Everybody knows each other since people regularly meet on holidays or during marriages, which are celebrated by the entire village, as well as during funerals. People also gather if there is some problem, and they work collaboratively together on community projects, e.g. road construction. The village of Beni Hmed traditionally has a good relationship with the neighboring Beni Aisi (further in the same valley), while Beni Aisi also has a good relationship with

[21] See e.g. Bordes & Labrousse 2004; Chouvy 2008; El Omari & Toufiq 2008; Mouna 2009; Afsahi 2015; Afsahi & Chouvy 2015; Lakhouaja, El Houcine, Ali Faleh & Jamal Chaaouan 2017, to name just a few.

[22] On life in Ketama, see also https://academia.li/gutova/fieldwork-poems (poems by the author about Ketama).

Taghunt. In the past, there used to be a bad relationship between the villages of Lmekhzen and Beni Hmed. Even at present, there is more intermarriage between the villages of Beni Hmed and Beni Aisi than between Beni Hmed and Lmekhzen or Asammar.

There are five mosques and one (primary) school in Beni Hmed (for children between 6 and 12 years old). As elsewhere in Morocco, teachers typically come from other regions, and hence they do not speak Ketama Berber. Beni Hmed has a hospital, but in fact it is a hospital *building* as there are no doctors working there. The nearest doctors can be found in Ikawen. For any serious medical issue, Ketama inhabitants have to go outside of the region.

The village of Beni Aisi is larger than Beni Hmed. It has more schools and mosques, but no hospital [building]. It is the only village in the Ketama region that has eight mosques. One of them (*Iġi*) also functions as a tribunal with *ṭṭulba* (SG *ṭalib*). If people have some problem, they go to *ṭṭulba*, especially if they cannot go to the police because the problem involves kif production (e.g. discussion about the borders of the fields).

Taking Care of the Field

Take care of the field includes the following main activities: plowing, sowing, and irrigation.

1) *leqlib* (Ar. = B.) 'plowing'

The plowing is done by *lġanču* (Ar. = B.) 'plow'. It can be done manually (by people) or by *zzawža* (Ar. = B.) 'a pair (of mules)' (yoke). Tractors cannot be used in the region, because it is a mountainous area and the land is not flat. The time of plowing depends on the weather. Plowing takes place when the rain season ends, between January and March. In 2013 (the first year of my fieldwork), it was raining a lot, so plowing took place late, only in April

2) *ẓẓeṛṛiɛa* (Ar. = B.) 'sowing'

Sowing takes place a few days after plowing. It is usually done manually. The word for 'seed(s)' is *ẓẓṛiɛa*. All types of cannabis seeds are sown at the same time, but each type has its own characteristics, such as water demand, size, time of harvest, amount of harvest, quality and quantity of kif it yields, and so on.

3) *ssqi* (Ar. = B.) 'irrigation'

Irrigation continues all the time, after sowing and until the harvest (between March and October). There is no need to irrigate between January and March because it usually rains. There are several Berber terms for 'field' (depending on the size and location) such as *iger, arqaɛt~ arqaɛṯ* (Ar. *feddan, mṭera*).

There are two major types of fields: *lbeɛli* (Arabic/Berber) 'not irrigated (but rain-fed) one' and *sseqwi* (Arabic/Berber) 'irrigated one'.

Types of Irrigation

There are different types of irrigation:

1) Ar. *ssaqya* = B. *ṯerga* '(small artificially dug) canal (next to the field)';

The water from the canal can have a different source, e.g.

- Ar. *sariž* = B. *asarižt* '(artificially dug) pool.' This pool is surrounded by a wall made of stones and soil. The *sariž* has a small hole (B. *imi n sarižt* 'mouth of *sariž*') that is blocked by a long wooden pole called B. *aṯemmunṯ* 'pole'. The pole is rotated in order to open the hole, so that the water goes to the canal;
- Ar. *ɛayn* = B. *ṯayya* 'a natural water-source/spring', from which one irrigates directly, i.e. without *sariž*;
- Ar. *lwad* = B. *asif* 'river'.

If the water-source is shared by many people (i.e. if it is not owned privately), people take turns (Ar. = B. *nnawba* 'turn') to use it, so that for example one group irrigates their fields on Monday, another group on Tuesday, etc. *Nnawba* can turn in ten-thirteen days, hence the group does not always irrigate on the same day of the week.

2) *rššaša* (Ar. = B.) 'a pole turning around and throwing water'; the water is brought to the field by (Ar. = B.) *tiw* 'tube, pipe' (< French *tuyau*).

Fields irrigated by *rššaša* are mostly found high in the mountains. They cannot be irrigated by canal, so the water is brought from mountain springs by tubes. One can irrigate many fields by just one *tiw* ('hose,' from French *tuyau*) and one *rššaša,* if one moves them. If there is a large source of water in the community land (high in the mountains), one can find more than thirty tubes in it belonging to different families. If the water source is not enough for a big number of tubes, one would also need to take turns (this is a kind of *nnawba*, although this term is usually not used in this case). This is found only in the mountains of Beni Hmed village (in the place called *Ima iksiġun*). Tubes are used to bring water not exclusively to *rššaša*, but also to houses (in order to drink, cook, wash, clean...), if the houses are not near a river or spring. Some houses have a *lbir* 'well'.

Other irrigation systems (rare in Ketama villages) include *lbir* 'well' and *goutte-à-goutte* ('drip irrigation'). Drop irrigation is not found in the Ketama valley but is used in some villages near Ikawen (e.g. Beni Hassan and Hallaba).

1.8. Senhaja Berber vs. Tarifiyt/Zenatic

Subclassification in Berber is often problematic (see e.g. Kossmann 2020; Souag 2017a). Senhaja Berber has been grouped differently in different studies (e.g. Kossmann 1999a: 31, Naït-Zerrad 2001; 2004: 102). It is usually treated separately from Tarifiyt. An exception is Lafkioui 2007a (in this section referred to as *Atlas*, with the numbering referring to the map) and Lafkioui 2009a; 2009b; 2011a: 169-194. According to Lafkioui's dialectometric analysis of the varieties studied in the *Atlas*, the primary split is found within the varieties classified as "Tarifiyt". Thus, the split of the Senhaja is only secondary (Lafkioui 2011a: 188). At the same time, Lafkioui (2011a: 190) states that there are other analyses in which the Senhaja dialects constitute a primary split. Kossmann 2017a describes the place of Senhaja in Berber dialectology. His article is based primarily on the data found in the *Atlas*. However, the two authors have different approaches (synchronic analysis in Lafkioui 2009a, 2009b, 2011a, and diachronic analysis in Kossmann 2017a), and their conclusions are different.[23] In what follows, some linguistic features of Senhaja vs. Tarifiyt (or, more generally, Zenatic) are discussed, based on Kossmann 2017a.[24] Differently from Kossmann 2017a, differences between Senhaja varieties are listed here.

1.8.1. Linguistic Isoglosses

1.8.1.1. Phonology/Phonetics

1. Initial vowel drop in *Etat Libre* (EL)

In Tarifiyt (and in other Zenatic languages), in some nouns, the initial vowel can be dropped in *Etat Libre* (EL).[25] This happens with nouns whose base starts with a single

[23] There are different approaches to linguistic isoglosses, how to count them, how to weigh them, and how to represent them. See Lafkioui 2020 on a qualitative and quantitative approach to classification in Tarifiyt. See François 2014 on trees and waves as models of language diversification, and Kalyan & François 2018 on the historical glottometry and freeing the comparative method from the tree model. This approach is interesting, but in order to run a glottometric study of Senhaja, one would first need to compile a list of innovations and code them.

[24] The name "Zenatic", "Zenete" (e.g. Destaing 1920) stems from the name of one of the great Berber macro-tribes of the Middle Ages (next to Senhaja and Masmouda), cf. Section 1.3. Note, however, that the use of the term "Zenatic" in Berber linguistics is somewhat arbitrary, and it is not referring to the historical tribe. Several isoglosses characterize this group, especially on the phonology and morphology levels (Destaing 1920, Kossmann 1999a, Naït-Zerrad 2001, 2004). In Morocco, Zenatic languages (Tarifiyt, Figuig) are distinct from Tashelhiyt and the (Western) Middle Atlas. Zenatic languages in Algeria include Chaouia, Mzab, Ouargla, and exclude Kabyle (Kossmann 2013a: 21-24).

[25] Here, the French term *état libre* 'free state' is used. See Section 6.1.1.3.

consonant followed by a full vowel, e.g. (Zenatic) *fus* 'hand', *fud* 'knee', etc. This feature is absent in Senhaja, where there is no vowel-drop, e.g.[26]
Masculine nouns:

- Snh. *afus* vs. Tarifiyt *fus* 'hand' (*Atlas* 6);
- Snh. *aḵal/aḵay/aḵaž* vs. Tarifiyt *šal/šař/šar* 'earth' (*Atlas* 57);[27]
- Snh. (Zerqet) *alim* vs. Tarifiyt *lum/rum/řum* 'straw' (*Atlas* 2); Ketama *ayyum*, Seddat/Hmed *ayyim*, Bunsar *ayyem* (Taghzut *ṭḇen*, from Arabic);
- Snh. *afuḏ* vs. Tarifiyt *fud* 'knee';
- Snh. *aḍar/aḏar* vs. Tarifiyt *ḍa(r)* 'foot';
- Snh. (Zerqet) *ifilu* (Hmed *ifiyu*) vs. Tarifiyt *filu/fiřu* 'thread' (*Atlas* 3);[28]
- Snh. (Zerqet) *ifiġer* vs. Tarifiyt *fiġer* 'snake' (*Atlas* 327).[29]

Feminine nouns:

- Snh. (majority) *ṯafukṯ* vs. Tarifiyt *ʇfuyṯ/ʇfušṯ/ʇfuḵšṯ* 'sun' (*Atlas* 39); different from the *Atlas*, Ketama has *ṯafuyṯ* (as Khennus), not *ṯafiyṯ*;
- Snh. (majority) *ṯimmiṭ(ṭ)* vs. Tarifiyt *ṯmiṭṭ* 'navel' (*Atlas* 315);[30] etc.

Ghomara behaves as Senhaja in this regard, i.e. there is no dropping of the initial vowel, e.g. *alum* 'straw', *afus* 'hand', *aḵal* 'earth', *afuḏ* 'knee', *aṭaṛ* 'foot', etc.

2. Internal vowel drop in *iCiCi*-nouns

In Tarifiyt and other Zenatic varieties, an internal vowel in the nouns of the *iCiCi* type is dropped, e.g. *igidi* > *iždi* 'sand', *inisi* > *insi* 'hedgehog'. There is only one word of this type in the *Atlas*, namely 'hedgehogs' (*Atlas* 111). In Senhaja varieties, according to the *Atlas*, the internal vowel is preserved in this word (the singular form, which is more frequent, is indeed *inisi* in Zerqet and Seddat). However (different from the *Atlas*), our Ketama informants from all the consulted villages (Beni Aisi, Beni Hmed, Sahel, Lmekhzen, Talghunt) say *insi*, with an internal vowel drop. Taghzut (both Lqela and Beni Khlef) has *qenfud* (< Arabic), recorded already in Renisio 1932. The word

[26] Some Berber varieties bordering on Senhaja show variation, i.e. optional vowel-drop in some nouns (see e.g. *Atlas* 6 on *(a)fus* 'hand'). Variation is sometimes found in Mezduy, e.g. *(a)šar* 'earth' (*Atlas* 57).
[27] The original **l* becomes *y* in some Senhaja varieties (Ketama, Seddat, Hmed) and *ž* in Taghzut. The **l* is preserved in Zerqet.
[28] In the dialects of Ketama, Taghzut, and Seddat, a loan from Arabic is used (Ketama and Seddat *lḫiṭ*, Taghzut *lḫiḍ*, cf. Ghm. *lḫayṭ*).
[29] Different from the *Atlas*, this noun is *i*-initial in Senhaja (Zerqet *ifiġer*, Bunsar *ifiġri*, F *ṯifiġri*); Seddat/Hmed (always F) *ṯifiġri*, Ketama *aykki*, Taghzut/Hmed *azrem* (snake type) ~ *lefɛa* (<Ar.).
[30] Zerqet *ṯimmiṭ(ṭ)*, with long *mm*. In Ketama, another lexeme is more commonly used: *ṯabuṭt* (*ṯimiṭṭ* is rarely used for the 'navel cord that is not cut'). Cf. Ghm. *taɛebbuṭt*. Kabyle has *timiṭṭ* and *tažaɛbuṭ* (derived from *tabuṭt*).

for ‘sand’ in Senhaja has been replaced by an Arabic loan (*ṛṛmel/ṛṛemla*). Ghomara data for the internal vowel drop are also lacking: Berber words where this drop is found are substituted with other lexemes: *ašnikef* ‘hedgehog’, *ṛṛmel/ṛṛemla* ‘sand’.

3. Nouns of the type *CuC ~ CiC*

Tarifiyt/Zenatic *u* in some nouns with the (V)CVC-structure corresponds to *i* in Senhaja, e.g.

- Snh. (Seddat, Bunsar, Hmed, Zerqet) *aḏif* (according to the *Atlas*) vs. Tarifiyt *aḏuf* ‘bone marrow’ (*Atlas* 1); however, Ketama and Taghzut have *aḏuf* (different from the *Atlas*) with *u*;
- Snh. (Zerqet) *alim* (Hmed *ayyim*) vs. Tarifiyt *lum/řum* ‘straw’ (*Atlas* 2). However, according to the *Atlas*, most Senhaja varieties have a form without a full vowel in this word, i.e. *ayem/ažem*. Ketama has *ayyum*, different from the *Atlas*, i.e. with *u*. Seddat *ayyim*, Bunsay *ayyem* (vs. *a yem* ‘o mother’), Taghzut *ṭḇen* (< Ar.).

All in all, the data are not conclusive in this regard. Note also that the word for ‘river’ has the vocalization *CiC* in Senhaja, *asif* (*Atlas* 10), while it seems that the Zenatic form (not encountered in Tarifiyt) is *suf* (Boutkan & Kossmann 2001).[31]

In Ghomara, vocalization *CuC* is found in *alum* ‘straw’ (Mourigh 2015: 485) and *aḏuf* (Mourigh, p.c.). The word for ‘river’ is *asif*.

4. Reflexes of the word-final **-eḇ#*

Word-finally, the old **eḇ* became *-i* in Tarifiyt/Zenatic, but *-u* in Senhaja (Kossmann 1999a: 86-91), e.g. Snh. *aġu* (Zerqet and Seddat, as in Ghomara) vs. Tarifiyt *aġi* ‘(butter)milk’ (*Atlas* 333-334).[32] However (different from the *Atlas*), Ketama uses the Arabic loan *leḥlib* to refer to both milk and buttermilk. In other Senhaja varieties, for ‘milk’, we found Seddat *aḵfay*, Taghzut *ṭaġemmaṭ*, and Zerqet *ṭaẓeḵṭ*. Hmed has *ṭaẓiḵ(ṭ)* referring both to milk and buttermilk. Hence, once again, the data are not conclusive here.

[31] According to the *Atlas*, part of Senhaja uses the lexeme *asif*, and the remaining varieties *iġzer* (cf. Tarifiyt *aġzer/iġzer/iġẓer*). In reality, both lexemes, *asif* and *iġzer*, are used in Senhaja (as e.g. in Kabyle), with a difference in meaning: *asif* is ‘river’, vs. *iġzer* ‘stream’ (diminutive *(ṭ)iġzert* ‘small stream’).

[32] In Taghzut, *aġu* means ‘sperm’, not ‘milk’. For dairy products, Taghzut has *ṭaġemmaṭ* ‘milk’, *ṭaḫebbaṭ* ‘buttermilk’, and *ikkiž* ‘curd’.

5. Labialized consonants

Tarifiyt/Zenatic dialects have no short labialized consonants, while they exist in some words in some Senhaja varieties (cf. Section 3.1.2.6 on labialization). In the following, the data from *Atlas* and our own are provided:

- *Atlas* 64: Snh. *agʷemmaḍ-/agʷemmaḍ-* (Taghzut *agemmaḍ-*) vs. Tarifiyt *ažemmaḍ* '(opposite) side (of the river/mountain)'; however, different from the *Atlas*, Ketama, Seddat, Hmed and Zerqet have *agemmaḍ/agemmaḍ-* (without labialization);[33]
- Snh. (Seddat, Hmed) *igʷen/igʷen* (alongside *(y)iwen*) vs. Tarifiyt *iž(ž)en/iğen* 'one'. However, many Senhaja varieties have forms with *w* rather than with *gʷ* in this word: Bunsar/Zerqet *(y)iw(w)en*. Mezduy has both *(y)iwen* and *iž(ž)en/iğen* (*Atlas* 66); Ketama and Taghzut have *yan*;
- Snh. (Seddat) *gʷma* vs. Tarifiyt *uma* 'brother' (cf. *Atlas* 317);[34]
- Snh. (majority) *ṯisḵʷrin/ṯiskʷrin* vs. Tarifiyt *ṯiseḵ(š)rin/ṯisekkurin/ṯisešrin/ ṯisekkura* 'partridges'; however, Ketama/Taghzut/Bushibet have *(ṯ)iskrin* (*Atlas* 112); note also that in the singular, Zerqet and Hmed have *ṯaskkurṯ*;
- *Atlas* 311: Snh. (Ketama/Taghzut/Seddat) *ṯagʷm(m)erṯ*, (Khennus/Bshir) *ṯigʷemmerṯ* (but Bunsar *ṯigemmerṯ*, Zerqet *ṯagummerṯ*)[35] vs. Tarifiyt *ṯigemmerṯ/ṯagmerṯ/ ṯagemmerṯ/ṯigemmerṯ* 'elbow', 'corner'; different from the *Atlas*, we found Ketama *(ṯ)agmart*, Taghzut *igmer*, Seddat *ṯagummerṯ*, Hmed *ṯigmarṯ*. It seems that in this word, labiovelarization is (being) lost, although it sometimes leaves traces behind.

To sum up, the data are not conclusive here: some Senhaja varieties have labialized consonants, while others do not. Ketama belongs to the latter group. However, in Ketama, as well as in other Senhaja varieties, lost labialization often leads to the appearance of the vowel *u* next to the old labialized consonant. This is discussed in more detail in Chapter 2 on phonology (Section 2.1.6).

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[33] In Senhaja, this word often appears with nominal deixis, e.g. Zerqet *agemmaḍ-a* (PROX) 'this side of the river', *agemmaḍ-in* (DIST) 'that side of the river', cf. Hmed *ayemmaḍ-in = dda* (PROX), *ayemmaḍ-in = ddin* (DIST).

[34] This word has variation in Senhaja: Taghzut *gma*, Hmed/Bunsar/Zerqet/Bshir/Khennus *ašqiq*. Different from the *Atlas*, Seddat also has a variant without labialization (*ḡma*), while Ketama only has variants without labialization: *gma, ḡma, ugma, uḡma*. In the last two forms, as elsewhere in the language, one may find traces of labialization.

[35] My Zerqet informants say *ṯagʷummarṯ* (< *ṯagʷemmart*), PL *ṯigʷummriwin* (with the stress on *u* in the PL). This situation is similar to Ghomara (Mourigh 2015: 59): if the labialized consonant is adjacent to the schwa, the schwa is realized as /u/.

Labialization of simple consonants is very common in Ghomara: Ghomara has *kʷ, ḵʷ, ḡʷ, gʷ, ḫʷ,* and *ġʷ*. However, also in Ghomara, labialization can be differently realized, e.g. the underlying */š-a ffeġʷ/* is realized as *š-a ffuġ* 'he will exit' (see Mourigh 2015: 59-62).

6. Senhaja *k/g* and Tarifiyt *š/ž*

There are some lexemes that show correspondence of the Senhaja *k(k), g(g)* to (Central) Tarifiyt/Zenatic *š(š), ž(ž)*.[36] Note that in some examples, we observe *g* > *y* (> Ø) in Hmed. However, we have not found examples where *g* > *ž* in Senhaja. Consider the following examples:

- Snh. *aḵal/aḵay/aḵaž* vs. Tarifiyt *šal/šař/šar* 'earth' (cf. *Atlas* 57);
- Snh. *nek(k)* vs. Tarifiyt *neš(š), niš, neč, nič* 'I' (cf. *Atlas* 60);
- Snh. *genna* 'above, high' vs. Tarifiyt *aženna* 'sky';[37]
- Snh. *ṯirget* 'ember' (Ketama *iregḏet*, PL *irreg*, Taghzut *ṯirgeṭ*, PL *irrig*, Seddat *ṯirget*, PL *irrig* ~ *ṯirgin*) vs. Tarifiyt *ṯiažet* (Mourigh & Kossmann: *fc.*).[38] Cf. Kabyle *ṯirgeṭ*, PL *ṯirgin* (but collective *irriž* where *g* > *ž*).

Ghomara has the non-Zenatic forms, i.e. with *k(k)* and *g(g)*, as Senhaja and unlike Tarifiyt, e.g. *aḵal* 'earth', *nekk* 'I', *genna* 'sky', and *tirget* 'ember'.

According to the data in the *Atlas*, there are also some words where non-Zenatic *kk* corresponds to *šš* or *č* in Senhaja, as it does in Tarifiyt. However, we have not found confirmation of this among the varieties we have studied. Below, we list examples from the *Atlas* and the forms we have encountered in the field.

- Reportedly (*Atlas* 61), Senhaja has *aššiy/ačil/ačiy*, cf. Tarifiyt *aššir/ačir* 'curd'. This corresponds to *kk* in non-Zenatic, e.g. Kabyle *ikkil*. Different from the *Atlas*, our Ketama and Hmed informants are not familiar with this lexeme (they use *ṛṛayb* < Ar.), while Taghzut, Seddat, and Zerqet have variants with *k*: Taghzut *ikkiž*, Seddat *ikki*, and Zerqet *ikkil*;[39]

[36] The development *k* > *š* and *g* > *ž* in (Central) Tarifiyt/Zenatic must be distinguished from lenition ("spirantization") that took place in many Berber varieties (cf. Section 3.1.2.4). Kossmann (1999a) proposes two series of velars: **kʸ, *gʸ* vs. **k, *g*, which merge everywhere, except in Zenatic. In Central Tarifiyt, **kʸ* > *š* and **gʸ* > *ž*, while **k* > *š* and **g* > *y*.

[37] In Senhaja, the word *genna* is usually used in the sense 'above', while 'sky' is expressed by an Arabic loan, *ssma*. In Hmed, we find a distinction between *genna* 'above, high, in the sky' vs. *yenna* 'sky'.

[38] In Zerqet, an Arabic loan *lefḥem* is used in this meaning. The cognate word in Hmed is realized as *ṯirriḫt*, where (exceptionally) *g* in the rest of Senhaja corresponds to *ḫ* in Hmed. The plural form is *irri*, where the final *g* > Ø. There are other examples where word-final *g* disappears in Senhaja.

[39] There is also a cognate verb (Zerqet): *kkil* (AOR = PERF), IPF *ttk(k)ilay* 'to be fermented'.

- Reportedly (*Atlas* 35), Senhaja has *ṯakeča/ṯaḵeča*, cf. Tarifiyt *ṯakešša* ‘worm’. This corresponds to Kabyle *ṯawekka*.[40] Different from the *Atlas*, Senhaja does not have *č* in this word: Ketama has *awkka(t)/(ṯ)abkiwṯ*, PL *iwkkatten/iwkka/ ibkkiwin* (alongside *dduda* from Arabic); Taghzut *(ṯ)aḇkiwṯ*, PL *(ṯ)iḇkiwin*, Seddat *ṯikʷet*, PL *ṯikʷa*, Hmed/Zerqet *ṯiwekkiṯ*, PL *ṯiwekka* ~ *ṯiwekkiwin* (Zerqet also *tiwkkiwa*).

In a few examples found in the *Atlas*, Senhaja has *ǧ/ž* corresponding to the non-Zenatic *g* (< **gʸ*), just as Tarifiyt. Once again, our data contradict these examples. Below, the data found in the *Atlas* and our own data are contrasted:

- Reportedly (*Atlas* 65), several Senhaja varieties employ *žar* ‘between’ (alongside Ketama/Taghzut/Bushibet *gar*), Mezduy *gar~žar*, cf. Tarifiyt *žar*. Different from the *Atlas*, we found Ketama and Taghzut *gir*, Seddat *ḡer*, Zerqet *ger/ḡer* (*gra-/ḡra-* with pronominal suffixes), Hmed *iyyer* (*ira-*), and no forms with *ž*;
- Reportedly (*Atlas* 68), for the word ‘thunder’, Seddat/Bunsar/Hmed/Khennus have *aǧaž*, Zerqet/Bshir *ažžaž*, Mezduy *aggag~ ažžaž* (alongside Taghzut/Bushibet *aggag*); cf. Tarifiyt *ažžaž*. Different from the *Atlas*, we found Bunsar and Zerqet *aggag*, and Hmed *aggay*. This lexeme is not known in Ketama, Taghzut, and Seddat, where an Arabic loan *ṛṛɛed* is used in this meaning (cf. Ghm. *ṛṛɛeḏ*).[41]

Ibáñez (1959) and Renisio (1932) also give non-Zenatic forms *ger, gar* ‘in’ and *aggag* ‘thunder’ for Zerqet and Hmed. We have found no contradiction to Kossmann’s (2017a: 97-98) conclusion that Senhaja *g* corresponds to Tarifiyt/Zenatic *ž*.

1.8.1.2. Morphology

1. Aorist *CCu* vs. Perfective *CCa*

In Zenatic, verbs that originally had a vowel alternation in the Aorist (*CCu*) and Perfective (*CCa*), now have the vowel *a* in both stems, e.g. Figuig *ḇḍa* (AOR = PERF) ‘divide’. This is different in the non-Zenatic varieties, where CCV-verbs preserve the difference between the Aorist on *-u* and Perfective, e.g. Tashelhiyt *bḍu* (AOR) vs. *bḍa* (PERF) and Ghomara *ḇṭu* (AOR) vs. *ḇṭa* (PERF) ‘divide’. Kossmann (2017a: 98), basing on Lafkioui 2007a, concludes that Senhaja preserves vowel alternation in such verbs:

[40] Cf. Tasahlit *ṯaḵečča*wt (Buyusef variety; Massinissa Garaoun, p.c.).

[41] Taghzut also has *agemgum*.

- Reportedly (*Atlas* 349), Snh. AOR *wḍu* vs. Tarifiyt AOR *bḍa* ‘divide’. However, different from the *Atlas*, this verb is not known in the Senhaja varieties we have verified (Ketama, Taghzut, Seddat, Bunsar, Hmed, and Zerqet), where the verb ‘to divide’ is *ẓun*, which is used alongside loans from Arabic, *qṣem, fṛeq, feṛṛeq*;[42]
- According to the *Atlas* (350), most Senhaja varieties (besides the Westernmost Ketama and the Easternmost Mezduy) have AOR *bḍu* vs. Tarifiyt AOR *wḍa* ‘fall’. The *Atlas* specifies that Ketama has *ḥsa*, while Mezduy has *bḍu/bḍa* and (dialectally) *wḍa*, as Tarifiyt. Among the Senhaja varieties we have studied, only Zerqet has this lexeme, and it indeed has *bḍu* (AOR) vs. *bḍa* (PERF).[43] Ketama and Hmed have *ḥsi*, Taghzut *ttaki*, and Seddat *ḍer*.

Nevertheless, the isogloss proposed in Kossmann (2017a: 98) is correct, as we find:

- Ketama *bdu*, PERF *bda* (in alternation with *bdi*) ‘to start, begin’ (Taghzut/Hmed *bḍu*, PERF *bḍi/bḍa*). This verb is originally from Arabic, but well-integrated into Berber morphology; Zerqet shows variation for this verb, having two Aorist forms, either *bdu* (as in the rest of Senhaja), or AOR = PERF, *bdi/bda*;
- pan-Snh. *bnu*, PERF *bna*; cf. Tarifiyt AOR = PERF *bna* ‘build’ (cf. Lafkioui 2007a: 177); this is again a well-integrated Arabic loan;
- pan-Snh. *zLu*, PERF *zLa* ‘to slaughter’ (capital *L* indicates the original/abstract phoneme that has different realizations in different Senhaja varieties): Zerqet *z(z)lu*, PERF *z(z)la*, Ketama/Seddat/Hmed *z(z)yu*, PERF *z(z)ya*, Taghzut *žžu*, PERF *žža*.

2. <u>*CC*-verbs</u>

In non-Zenatic (e.g., in Tashelhiyt), there are two types of CC-verbs (verbs with two consonants without a full vowel):

1) CC*: with an alternating vowel in the Perfective, e.g. AOR *nġ*, PERF *nġi/a* ‘kill’; and
2) CC: without a vowel, e.g. AOR = PERF *ġz* ‘dig’.

In Zenatic, CC-verbs of the two types merged, so that all of them have an alternating vowel in the Perfective: AOR *nġ*, PERF *nġi/a* ‘kill’; AOR *ġz*, PERF *ġzi/a* ‘dig’.

[42] The verb *ẓun* is native Berber. Cognate forms (in the words for ‘to divide/share’ or ‘half’) are found in Tarifit, Ouagla, Mzab, Nefusa, Ghadames, Siwa, Tuareg, and (with non-emphatic *z*) in Tamazight, Tashelhit, Kabyle, Chaouia, and Zenaga (Haddadou 2007: 230).

[43] It is an *i/a* alternating verb (1 and 2 person *-i* vs. *-a* in the rest of the paradigm), so the Perfective is *bḍi/a* (cf. Section 4.3.1.3).

In Ghomara, unlike in Zenatic, there are different kinds of CC-verbs according to their Perfective conjugation. Note that Ghomara actually has three (and not two) kinds (Mourigh 2015: 153):

1) verbs that always have *-a* in Perfective (in all persons); the only example is *nuġ* (*/nġ^{w}/*);[44]
2) verbs that have *-a* in Perfective only when followed by an inflectional suffix, e.g. *nes* 'be extinguished', *ḵes* 'herd', *ẓeṛ* 'see', *fk* 'give', *res* 'land';
3) verbs that do not change at all (have no alternating vowel), e.g. *meḏ* 'finish', *ẓeḏ* 'grind', *mel* 'show', *suġ* (*/sġ^{w}/*) 'buy'.

Ibáñez 1959 and Renisio 1932 do not provide the Perfective forms, and Lafkioui 2007a does not have CC-verbs without vocalic alternation in the Perfective. Therefore, this important isogloss is left blank in Kossmann (2017a: 98, 100). Indeed, it turned out to be difficult to fill in this gap. So far, only four biradical verbs not showing vowel alternation in the Perfective have been found in Senhaja: *ḏer* 'to fall' in Seddat, *ġez* 'to dig' and *res* 'to land', 'to get off' in Hmed, and *rez* 'to return (something)' in Hmed, Zerqet, and Bunsar.[45] None of these is found in Ketama.[46]

If we can draw conclusions based on these few examples, Senhaja (or, rather, Seddat, Hmed, Bunsar and Zerqet) behaves like Tashelhiyt rather than like Zenatic/Tarifiyt, i.e. distinguishing the two classes of CC-verbs. However, the CC* class (with the vowel alternation) is by far more frequent than the CC class without the alternating vowel. It must also be noted that many biradical verbs developed into other types in Senhaja (see below).

CC* verbs in Ketama include: *neġ* (~*nuġ*) 'to kill' (Imperative SG *nuġ*, PL *nġ-aṯ*; PERF 1S *nġi-ġ*, 3MS *i-nġa*).[47] Other verbs that have *i/a* vowel alternation in the Perfective include: *seġ* (~*suġ*) 'to buy', *ẓer* 'to see',[48] *ḵes* 'to herd', *res* 'to dress' = 'to land', *reẓ* 'to break', *ġer* 'to study'. Other Senhaja varieties have cognate verbs in the same (CC*) category, e.g. Seddat *neġ* 'to kill', *seġ* 'to buy', *ḵes* 'to herd', etc.

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[44] In Amtiqan dialect, the verb has *a* only when followed by a suffix (El Hannouche 2010: 256), i.e. it belongs to the following type.

[45] The verb *ġez* 'to dig' should be distinguished from the verb *ġezz* (<*ġezzez*) 'to gnaw' (reduced to *ġez(z)* in many Senhaja varieties).

[46] Ketama uses Arabic loans for the first two meanings: *ḥsi* 'to fall', and *ḥfer* 'to dig'. For 'to land', Ketama has *res*, as Hmed, but this verb has a vowel alternation in Perfective (*rsi/rsa*) in Ketama and thus belongs to the CC* class. For 'to return (something)', Ketama has *rri*.

[47] The vowel *u* that shows up in some forms is a result of the lost labialization (cf. Section 2.1.6). The same feature is found in some other verbs, e.g. *suġ* 'to buy', *kkur* 'get up'. In the verb *mmuṯ* 'die', vowel *u* has been introduced by analogy with the Perfective form. Eastern Senhaja varieties (e.g. Zerqet) have IMP.SG forms with *e*, e.g. *neġ* 'kill', *seġ* 'buy', *kker* 'get up' and *mmeṯ* 'die'.

[48] Pharyngealization is hardly audible in this word in Senhaja, and is absent in Hmed.

Some biradical verbs have been replaced by Arabic loans. Thus, the verb 'to dig' in Ketama is *ḥfeṛ* (as in Ghomara, vs. Hmed and Tarifiyt *ġez*). The verb 'to see' in Seddat is *ḥzeṛ* (rather than *ẓeṛ* which is used in other varieties, sometimes alongside *ḥzeṛ*, as in Zerqet).[49] Other biradical verbs in Ghomara and Tarifiyt correspond to verbs with lengthening of one of the two consonants. Compare, for example, Ghomara *mel* 'to show' and Ketama *mmey*, Zerqet *mmel*; Ghomara *ẓeḍ* and Ketama/Zerqet *ẓẓeḍ* 'to grind' (first consonant is long); Tarifiyt *seř* 'to hear' and Ketama/Hmed *sell*, as in Ghomara (second consonant is long).

Regarding CC verbs with long consonants, there is also an interesting pair in Ketama: *ẓẓeḍ* 'to grind, mill' and *ẓeṭ(ṭ)* 'to weave (carpet), to plait (hair)'. In Kabyle, there is only one form, *ẓeḍ*, with two meanings, 'to grind' and 'to weave'. Outside the Ketama pair *ẓḍ/ẓṭ*, it is difficult to find minimal pairs distinguished by *ḍ (ḍ)* vs. *ṭ(ṭ)* in Berber, where *ṭṭ* generally serves as a long counterpart of *ḍ* (see Section 2.1.2.2).[50]

In Zerqet, some originally biradical verbs have evolved by means of verbal prefixes. Thus, the verb *les* 'to dress (oneself)' developed into *ssels* by generalizing the originally causative form 'to dress someone'. Currently, the verb *ssels* can be used both transitively and intransitively in Zerqet. Similarly, the verb *nes* 'to spend the night' evolved into *ssens* (originally a causative of *nes*). The verb *zzenz*, originally a causative of *nez* 'to be sold', can be currently considered the base form (as *nez* is no longer used). The verb *sel(l)* 'to hear' has evolved into *tsla*. Here, the originally IMPERFECTIVE form has been reinterpreted as the AOR (cf. *ẓeṭṭ* 'to weave' above). Finally, the verb *res* 'to land' is *a*-initial in Zerqet: *ares,* PERF *ursa*.

To sum up, due to different changes, Senhaja has very few CC verbs, especially when compared to Ghomara. Among the CC verbs that exist, the CC* type with the vowel alternation in the Perfective is by far more numerous than the other class (without the vowel alternation), represented (so far) by four examples, *ḍer* 'to fall' (Seddat), *ġez* 'to dig', *res* 'to land' (Hmed), and *rez* 'to return (something)' (Hmed, Bunsar, Zerqet). Ghomara has more examples of CC verbs. It is thus possible that Ghomara is more conservative in this regard, while Senhaja might be losing the distinction between the different classes of biradical verbs, thus approaching the situation found in Tarifiyt.

[49] The verb can be pronounced as *ḥzeṛ* or as *ḥzer*: the pharyngealization on the last consonant is not always audible.

[50] Originally, the verbs 'to grind' and 'to weave' were probably distinguished by pharyngealization: *ẓ* was the primary emphatic in 'to grind', vs. *ḍ* in 'to weave'. In Ketama, the IPF *ẓeṭṭ* was generalized and became the Aorist form, and thus the verbs are distinguished. I thank Maarten Kossmann for his comments on this issue.

3. Vocalization in the Perfective of *CC* and *CCa* verbs

In non-Zenatic varieties (Senhaja, Tashelhiyt), the alternating vowel in the Perfective of *CC*-verbs and in *CCa*-verbs is usually the same, e.g.

- CC-verb 'kill': Tashelhiyt 1S *nġi-ḥ*, 3MS *i-nġa*, 3P *nġa-n*;
  cf. Senhaja 1S *nġi-ġ*, 3MS *i-nġa*, 3P *nġa-n*;
- CCa-verb 'divide': Tashelhiyt 1S *bḍi-ḥ*, 3MS *i-bḍa*, 3P *bḍa-n*;
  cf. Senhaja 'build': 1S *bni-ġ*, 3MS *i-bna*, 3P *bna-n*.[51]

In Zenatic, the alternating vowel in such verbs differs, e.g.

- CC-verb 'kill': Iznasen 1S *nġi-ġ*, 3MS *y-enġa*, 3P *nġi-n*;
  Figuig 1S *nġi-ḥ*, 3MS *i-nġu*, 3P *nġ-en*;
- CCa-verb 'divide': Iznasen 1S *bḍi-ġ*, 3MS *y-ebḍa*, 3P *bḍa-n*;
  Figuig 1S *bḍi-ḥ*, 3MS *i-bḍa*, 3P *bḍa-n*.

The following table is adopted from Kossmann (2017a: 99).

Vocalization in the Perfective of CC and CCa verbs

	Tashelhiyt	**Iznasen/Zenatic**	**Figuig/Zenatic**
	CCCCa	CCCCa	CCCCa
1/2S	-i -i	-i -i	-i -i
3S/1P	-a -a	-a -a	-u -a
2/3P	-a -a	-i -a	Ø -a

The Iznasen forms are the ones most commonly found in Tarifiyt (*Atlas* 207, paradigm I), while Tashelhiyt forms correspond to Senhaja (*Atlas* 207, paradigm III). In the border varieties between Senhaja and Tarifiyt (i.e. Mezduy, 'Ammart, Ibeqquyen), there are different forms (*Atlas* 206, paradigm II, 207, paradigm II), where vocalization in both paradigms is the same (unlike in Zenatic).

In Ghomara, as in Tashelhiyt and Senhaja, the vocalization in the Perfective of the verbs of the two types is the same (e.g. *nġ* 'kill' and *b̲ṭu* 'divide'). However, unlike in other non-Zenatic Berber varieties including Senhaja, the vowel is *a* in all persons, e.g. *nġa-ḫ* 'I killed', *t-enġa-t* 'you (SG) killed', *i-nġa* 'he killed'.

4. Passive marker

In Tarifiyt/Zenatic, the passive prefix is *ttwa-, ttw-*, *ttu-*, which is also found outside the Zenatic varieties (e.g. Kabyle *iṭṭwa-*). A second type of the passive prefix, not found in

[51] In the same category, we find Ketama *zyu* (< **zlu*) 'to slaughter', *bdu* 'to start'. Taghzut also has *zdu* 'to open' (PERF *zdi/zda*), vs. Ketama *zdi*.

Zenatic, contains the palatal semi-vowel *y* (*ttyi-, ttuy-*). In Senhaja, both types of passives exist. The prefix with *y* is found in Ketama (*ttya-*), Taghzut (*ṭṭya-*), Seddat/ Bunsar (*ttuya-*), Hmed (*ṭṭuya*). In the Easternmost varieties (Zerqet/Mezduy), the passive prefix is like in Tarifiyt, i.e. with the semi-vowel *w*: *t(t)wa-*.[52] The original passive form is lost in Ghomara.[53]

In Senhaja, besides the prefixes with *y* or *w*, one also finds prefixes *t(t)-* (Taghzut *ṭ(ṭ)-*) and *n(n)-*, as well as the middle prefix *m-*~*n-* (the choice is usually lexical, although some verbs accept multiple prefixes). See also Section 3.3 on verb derivation in Senhaja. The following table lists some examples of Senhaja passives. The symbol '---' indicates that no morphologically derived passive was encountered in the variety in question. The forms in *Italics* indicate the suppletive relationship between the base verb and the borrowed Arabic passive.

Passive prefixes in Senhaja

Base verb	**Translation**	**Ketama**	**Taghzut**	**Hmed**	**Zerqet**
ṭṭef	'catch'	ttyaṭṭef	ṭṭyaṭef	ṭṭuyaṭef	ttwaṭṭef
ak̲$^{(w)}$er	'steal'	ttyak̲er	ṭṭyuk̲er	ṭṭuyak̲er	ttwˆak̲k̲^{w}er
ari	'write'	ttyara	ṭṭyuri	ttekteb̲ nnekteb̲	---
ṣeṛṛed̲	'send'	tṣeṛṛed̲	nṣeṛṛed̲	tṣeṛṛed̲	tṣeṛṛed̲
ṣayfed̲	'send'	tṣayfed̲	tṣayfed̲	tṣayfed̲	tṣayfed̲
k̲rez	'plow'	nnek̲rez	ṭṭek̲rez	ttek̲rez nnek̲rez	ttwak̲rez ttek̲rez
bnu	'build'	nnebna (ttebna)	ṭṭeb̲na~ nneb̲na	ttеb̲na nneb̲na	ttwabna ttebna
sew (seb̲)	'drink'	---	neswa	ttesb̲a	tteswwa
ešš/ečč	'eat'	nnetk̲el ttyak̲el	nmeč(č)	tmeč(č) mmeč(č)	mmeč(č) (tmeč(č))

[52] Our data differ from *Atlas* 205 in that the prefix in Taghzut lacks the vowel *u*, while our Bunsar informants use the same form as in Seddat (*ttuya-*) rather than *ttwa-* (as in Zerqet).

[53] In Senhaja, too, some verbs take (only) Arabic passives, e.g. Taghzut *nneqṭel* 'killed'. The passive is thus suppletive to the Berber verb *neġ* 'to kill'. There are many more examples of this kind.

1.8.1.3. Summary of phonetic and morphological isoglosses

Below follows the table summarizing the isoglosses (cf. Kossmann 2017a: 100). The lacking data for isogloss 8 have been supplied. For the sake of precision, Ketama and Zerqet are treated separately here, to demonstrate that "Senhaja" does not always behave as a homogenous entity.

Summary of isoglosses

	Isogloss	**Ghomara**	**Ketama**	**Zerqet**	**Tarifiyt**	**Notes**
1	V drop EL	–	–	–	+	Snh. *afus*, Rif *fus*
2	Internal V drop	no data	+	–	+	K *insi*, Z *inisi*
3	*CiC > CuC*	+ (*u*)	Yes (*u*)	– (*i*)	+ (*u*)	K *aḏuf*, Z *aḏif*
4	**-eḇ# > i*	– (*u*)	no data	– (*u*)	+ (*i*)	Z *aġu*
5	Labialization	+	–	+	–	K *aġmar*, Z. *ṯaġʷummarṯ*
6	*k>š, g>ž*	–	–	–	+	K/Z *nek(k)* 'I'
7	*CCu > CCa*	–	–	–	+	K/Z *zLu > zLa*
8	*nġ=ġz*	–	+	–	+	Z *rez* 'return'
9	*CC=CCa*	+	+	+	–	K/Z *inġa=ibna*
10	PASS with *y*	(lost)	+	–	–	K *ttya-*, Z *ttwa-*

Kossmann (2017a: 100) concludes that in spite of some dialectal variation within the Senhaja (isoglosses 6 and 10) and within Tarifiyt (isogloss 9), for the majority of isoglosses, Senhaja differs from Tarifiyt/Zenatic, and is rather similar to Ghomara. We must specify that dialectal variation within Senhaja (in particular, between Ketama and Zerqet) is found also in isoglosses 2, 3, 5, and 8, and that we lack Ketama data for isogloss 4. For isogloss 8, the data are also very limited.

When treated separately, Zerqet (which is geographically closer to Tarifiyt) behaves differently from Tarifiyt/Zenatic in nine cases out of ten, behaving like Tarifiyt only in isogloss 10. Interestingly, Ketama, which is geographically further from Tarifiyt, behaves differently from it only in five cases (isoglosses 1, 6, 7, 9, 10). Note that there are only three isoglosses (1, 7, and 9) that unambiguously show that Senhaja (both Ketama and Zerqet) behave differently from Tarifiyt/Zenatic (and this when omitting the variation in the Rif border dialects for isogloss 9). While conclusions in Kossmann 2017a are largely correct, it must be emphasized once again that it is difficult to treat Senhaja as a linguistic unity, as variation within this group is quite large.

Ghomara (non-Zenatic) behaves differently from Tarifiyt in seven cases (isoglosses 1, 4, 5, 6, 7, 8, and 9), behaving like Tarifiyt only in isogloss 3 (where the data are very limited); there are no data for isoglosses 2 and 10. When comparing Senhaja and Ghomara, we can observe that Ghomara behaves like Zerqet for six isoglosses, and like Ketama for five. This might be somewhat surprising, considering the fact that Ketama is geographically closer to Ghomara than Zerqet is. However, there are also examples where Ketama behaves like Ghomara (and unlike Zerqet), e.g. the number distinction in nominal deixis (cf. Section 6.6). Hence, it must be noted that different conclusions can be reached depending on the choice of isoglosses.

1.8.1.4. Lexicon

There are significant differences in lexicon between Senhaja and Tarifiyt/Zenatic, e.g.

- (pan-)Snh. (=Ghomara) *ḵšem* vs. Tarifiyt *aḏef* 'enter' (*Atlas* 345);
- Snh. *aġuL* (Taghzut *aġuž*, Seddat/Bunsar *aġuy*, Hmed *ġuy*, Zerqet *aġul* ~ *aġġul*) vs. Tarifiyt *ḏweL* 'become/return' (*Atlas* 347); however, Ketama has *qleb* (in the dialects studied in the *Atlas*) and *werri* (Beni Aisi/Beni Hmed dialects); Ghomara has *qqul*;
- Snh. (=Ghomara) *awrez* vs. Tarifiyt *(i)nirz, (i)nerz*, *nurz* 'heel' (*Atlas* 312); different from the *Atlas*, Ketama has *agruz* (cf. *agurzet* 'malleolus');
- Snh. *(e)kk* (Ghomara *fk*) vs. Tarifiyt *uwš* 'to give'.

Interestingly, the word for 'slaughter' is *zLu* in Senhaja (Zerqet *z(z)lu*, Ketama/Hmed *zyu*, Taghzut *žžu*, etc., cf. Kabyle *zlu*),[54] vs. a much more wide-spread in Moroccan Berber *ġres* (found in Tarifiyt, Tashelhiyt, and Middle Atlas Tamazight). This time, Ghomara behaves like Tarifiyt and unlike Senhaja, i.e. it has *ġres*.

For 'tomorrow', Senhaja has *az(ek)ka* (and variants, see also Section 3.2.2.3), cf. Kabyle *azekka*, vs. Tarifiyt *ṯiwšša* (Waryaghel *ṯuḏešša*). However, these lexemes might be related: see André Basset 1952 (map on p. 53 and comments on p. 56). It is possible that Senhaja (as well as Middle Atlas, Kabyle, Tasahlit, Ghadames, etc.) *kk* in this word corresponds to *šš* in Tarifiyt (as well as Mzab, Ouargla, Gourara, etc.) and *čč* in Chaouia, Sud Oran, Figuig, Warayn, etc. However, the variation in *z* and *w* remains unexplained. René Basset (1883: 52) considers *azekka* as a compound of *ass* 'day' and the verb *ekk* 'to pass'. However, it is not explained why **asf* became *az* before *kk*. This theory is also problematic because Zenatic has *ekk* 'to pass' (with *kk* and not *šš*).

[54] Tasahlit has both *zlu* and *ġres*.

In Kabyle, the word for ‘tomb’, *aẓekka*, is distinguished from *azekka* ‘tomorrow’ by pharyngealization. Its cognate *azekka* (‘id.’) in Ketama lacks pharyngealization and is distinguished from the word for ‘tomorrow’ (*azka*) by consonant length.[55] No cognates have been found in other Senhaja varieties or in Tarifiyt. Thus, we find *imḍel* in Zerqet, *imḍey* (< **imḍel*) in Seddat, (feminine) *ṯimḍelṯ* in Hmed.[56] Cf. Tarifiyt *anḍař* (< *anḍel*). These words are cognates of the Kabyle *timḍelt/tinṭelt* (syn. of *aẓekka*) ‘tomb’, and they all derive from the same root MḌL (variants: MṬL, NḌL, NṬL) ‘to bury’.

Lexical isoglosses do not always provide good evidence for language (sub)groupings, especially when taken in isolation. When taken as a bundle, as it often happens in Berber, different lexical isoglosses provide conflicting evidence. Some words unite Senhaja and Ghomara, others are common to Senhaja and Tarifiyt, still others to Senhaja and Kabyle. There is often a split within Senhaja, similar to the lexical differences within Tarifiyt. Therefore, lexical isoglosses presented further in this study are not provided as a proof of anything, but are merely listed for illustration purposes.

1.8.2. Senhaja vs. Ghomara

1.8.2.1. Common features

Several features that are not common in Berber, are shared by Ghomara and Senhaja (cf. Kossmann 2017: 102-103).

1. Number marking in nominal clitics

In some Western Senhaja varieties (Ketama and Taghzut), nominal clitics are marked for number, as in Ghomara (cf. *Atlas* 240-242). The number distinction is lacking in the rest of Senhaja (Seddat, Bunsar, Hmed, Zerqet). The following table shows Ketama and Taghzut forms compared to that of Ghomara (Mourigh 2015).[57] Cf. Section 6.6. for the forms in other Senhaja varieties.

[55] The basis of the word for ‘tomb’ in Kabyle and Ketama seems to be the (old) verb *ẓk* ‘to build’ (cf. Dallet 1982), which is no longer used in these varieties. In the varieties that still have this verb, *ẓ* is often assimilated in voice to *k*, and pharyngealization is lost. In Ketama, apparently, only pharyngealization was lost. However, this does not solve the loss of consonant length in ‘tomorrow’.

[56] Hmed *isenḍay* ‘graveyard’ is derived from the same root.

[57] In Ketama, distal and anaphoric pronominal clitics are identical. There is also an anaphoric clitic *nda* (invariable for number and gender).

Nominal deixis in Ketama, Taghzut, and Ghomara

	Ketama	Taghzut	Ghomara
PROX:SG	a<u>d</u>	a<u>d</u>i	a<u>d</u>, a<u>d</u>in(e<u>t</u>)
PROX:PL	i<u>d</u>	i<u>d</u>i	i<u>d</u>, i<u>d</u>i(ne<u>t</u>)
DIST:SG	a<u>d</u>in	a(ye)n	an(i)/
DIST:PL	i<u>d</u>in	iyyen	in(i)/
ANP:SG	= DIST:SG	= DIST:SG	ahen
ANP:PL	= DIST:PL	= DIST:PL	ihen∼ihin

2. <u>Special lexical items</u>

Senhaja and Ghomara have some lexical items that are not normally found in other Moroccan Berber varieties, but are found elsewhere, e.g.

- Senhaja of Hmed *isin*, Ghm. *asan* ‘tooth’. A cognate is found in Tuareg, *esen* ‘tooth’. However, other Senhaja varieties do not have this lexeme: Bunsar/Zerqet *aqerruš*, Ketama/Taghzut/Seddat *aferrum*.[58] There are other words for canine and molar teeth;
- Snh. (e.g. Taghzut, Zerqet) *<u>ṭ</u>ağfil<u>ṭ</u>* (Ketama of Beni Aisi *agfil<u>ṭ</u>*, PL *igfiyyen*; Beni Hmed *awfil<u>ṭ</u>*, PL *iwfiyyen*; Hmed *<u>ṭ</u>ifil<u>ṭ</u>*, PL *<u>ṭ</u>ifiyyin*); Ghm. *tawfalt* ‘egg’. This form corresponds to *tofelt* in Tetserret in Niger (Lux 2011: 514). See Kossmann 2015d for the ancient Berber word for ‘egg’.

1.8.2.2. Differences Senhaja vs. Ghomara

There are also some important features not shared between Senhaja and Ghomara.

1. *<u>*d > ḍ/ḍ</u> in Senhaja vs. <u>ṭ</u> in Ghomara

There are correspondences of Senhaja <u>ḍ/ḍ</u> and Ghomara <u>ṭ</u>, e.g.[59]

- Snh. *a<u>ḍ</u>ar* (Hmed *a<u>d</u>ar*), Ghm. *aṭar* ‘foot, leg’;
- Snh. *a<u>ḍ</u>a<u>ḍ</u>* (Zerqet/Taghzut/Hmed usually *<u>ṭ</u>a<u>ḍ</u>aṭ/<u>ṭ</u>a<u>ḍ</u>a<u>ṭ</u>*, i.e. the F form), Ghm. *aṭu<u>g</u>d* ‘finger’ (*Atlas* 301); Ketama has *a<u>ḍ</u>u<u>ġ</u>d*, not *a<u>ḍ</u>u<u>ḍ</u>*, different from the *Atlas*;

[58] Cognate forms of this word exist in Kabyle (*afermaš* ‘toothless’), Algerian Arabic (*fermaš* ‘id.’), Tasahlit (*furrem* ‘to be toothless’), and Jijel Arabic (*fərrām / yəfərrəm* ‘to be toothless’) (Massinissa Garaoun, p.c.). Dallet 1982 also lists words with the same root (*ffurem* ‘be toothless’, CAUS *sfurrem* ‘ébrécher’. The word derives from the Arabic root FRM (*al-aframu*, ‘with broken teeth’).

[59] The same correspondence is found within Kabyle: Western Kabyle <u>ḍ</u> corresponds to <u>ṭ</u> in Eastern Kabyle and Tasahlit, e.g. *a<u>ḍ</u>ar∼aṭar* ‘foot’.

- Snh. (e.g. Zerqet) *aḍil* (Ketama/Hmed *aḍi*, Taghzut *aḍiž*), Ghm. *aṭil* ‘grape’;
- Seddat/Bunsar/Zerqet *iḍeği*, Hmed *iḍelli*, Taghzut *iḏyan*, cf. Ghm. *aṯḡam* ‘yesterday’ (*Atlas* 248) (Ketama has *iggam*);
- Snh./Ketama/Hmed *ḵṣuḍ*, Ghm. *ḵṣuṭ* ‘be afraid’.

In the following word, however, Ketama and Ghomara *ṭ* corresponds to *ḍ* in the rest of Senhaja: Ketama *iṣmeṭ* (Ghm. *tiṣmeṭ*) ‘cold’ vs. Hmed/Zerqet *aṣemmiḍ* ‘id.’.

Mourigh (2015: 21) notes that in Ghomara, there is a tendency in some speakers’ speech for *ṭ* to become *ḍ* after a vowel or a voiced consonant, e.g. *ayeffeṭ* (Iaraben form, cf. Beni Mensour *aḵfeṭ*) > *ayeffeḍ* ‘cattle’, *lmuṭaɛ* > *lmuḍaɛ* ‘to a place’, *baɛṭem* > *baɛḍem* ‘to each other’, and *mriṭ* > *mriḍ* ‘ill’. In Ketama, we note free variation in the forms *ṣeyfeḍ* ~ *ṣeyfeṭ* ‘send’.[60] Within Senhaja, we find Ketama and Seddat *lḥiṭ* (Ghm. *lḥayṭ*) vs. Taghzut *lḥiḍ* ‘thread’, Ketama *ḥeyyeṭ* vs. Hmed/Zerqet *ḥeyyeḍ* ‘sew’, Ketama/Zerqet *ḥṭeb* vs. Hmed *ḥḍeḇ* ‘betroth’, and so on. That is, some Arabic loans preserve *ṭ*, while others do not. Generally, Taghzut and Hmed varieties tend to integrate Arabic loans into the Berber phonological and morphological system better than Ketama.

2. Spirantization

The spirantization in Senhaja is not as regular as in Tarifiyt, and does not follow the same rules as Ghomara (see Mourigh 2017). According to the speakers themselves, “it is all according to the tongue” (i.e. different people can pronounce the same word differently, sometimes with spirantization and sometimes without, depending on what one finds “easier to pronounce”). It is necessary to note that different Senhaja varieties have slightly different rules of spirantization. See further Chapter 2 (Section 2.1.4).

3. Feminine plural marker: Snh. *-in* vs. Ghm. *-an*

Feminine plural noun suffix is *-in* in Senhaja (as elsewhere in Berber), while it is *-an* in Ghomara, e.g. Snh. *ṯ-i-mġar-in* vs. Ghm. *t-i-mġar-an* ‘women’ (from SG *tamġart*).

4. 2S verb suffix: Snh. *-eḍ* vs. Ghm *-et*

The 2S verb suffix is *-eḍ* in Senhaja (as in Tarifiyt and parts of the Middle Atlas), while it is *-et* in Ghomara (as in Tashelhiyt and in other parts of the Middle Atlas), e.g.

[60] On this verb, which is a loan from Berber by Arabic, see Pellat 1950, Heath 2000a, and Kossmann 2013a: 187-188. The variant with *ṭ* might reflect a re-borrowing from Arabic.

Senhaja *ṯ-feṛq-eḏ* (Ketama *h-feṛq-eḏ*), vs. Ghomara *t-feṛq-et* ‘you (SG) divided’. The same correspondence (Snh. *ḏ* vs. Ghm. *ṯ*) is also found in the Imperfective form of the verb ‘to go’, Ketama *ttuḏu* vs. Ghm. *ttiṭu*.

5. Imperative plural suffix

In Senhaja, the IMP:PL suffix is *-aṯ* in Ketama, Taghzut, Seddat, and *-(e)ṯ* in the rest of Senhaja (Zerqet also *-(e)m* in specific circumstances, e.g. in combination with the clitics; cf. Tarifiyt *-(e)m, -(e)ṯ*, *Atlas* 203), cf. Section 3.4.2. In Ghomara, the forms are *-aṯ* or also *-aweṯ*. The IMP:PL suffix with *w* is found in some dialects of the Middle Atlas, Siwa, and Niger Tuareg (Kossmann 2001: 26-28).

1.8.3. Conclusions

Overall, conclusions in Kossmann 2017a are correct that Senhaja often exhibits non-Zenatic features that are also found in Ghomara. It is thus safe to say that Ghomara and Senhaja are most likely genetically related, and Ghomara is probably the closest relative of Senhaja, while Tarifiyt (Zenatic) stands apart. At the same time, Ghomara also differs from Senhaja considerably in some points. It is interesting to note that some features might be shared by Ghomara and Ketama (but not by Zerqet), while others might be shared by Ghomara and Zerqet (but not by Ketama). This is due to the fact that Senhaja does not form a linguistic unity, and there is large linguistic variation within this group. There are also some features that are shared by Ghomara and Tarifiyt (e.g. the lexeme *ġres* ‘slaughter’, also found in Tashelhiyt and Middle Atlas), while Senhaja has *ʒLu* (with different realizations of **l*, depending on the variety), as in Kabyle. Depending on the choice of isoglosses, one may arrive at different conclusions.

1.9. Senhaja Berber and Language Contact

Senhaja Berber is known to be among the Berber varieties that have been most influenced by the Arabic language. Already Renisio (1932: XI) notes that Senhaja has borrowed many Arabic terms (without always Berberizing them). It is thus not a recent feature of the language. Senhaja is characterized by extensive borrowing, across different word classes and in various semantic fields. In what follows, first, some examples of lexical Arabic borrowings in Senhaja are presented: Section 1.9.1 treats the “basic vocabulary”, while Section 1.9.2 groups the borrowings by semantic field. Section 1.9.3 deals specifically with verbs. In Section 1.9.4, Arabic influence on other

domains than lexicon (e.g. on morphology, syntax) is discussed. The discussion is largely inspired by Kossmann 2013a. Differently from Kossmann (2013a), examples stem from the fieldwork data, and different Senhaja varieties are distinguished (when they behave differently). Most Arabic nominal loans contain the Arabic article *l-* (or its assimilated form), e.g. *ddem* 'blood' (Zerqet), *šṣ̌a* 'rain' (Ketama), etc.

1.9.1. "Basic Lexicon" (the Leipzig-Jakarta List)

There is a specially-designed list (the so-called "Leipzig-Jakarta list" or "LJ-100 list") of 100 items in basic lexicon focusing on the study of borrowing (Haspelmath & Tadmor 2009a; cf. Kossmann 2013a: 106-125). According to the estimations in Kossmann (2013a: 110) based on the LJ-100 list, 17% of Senhaja vocabulary is borrowed.[61] For comparison, percentage of borrowed vocabulary in other Moroccan Berber varieties (based on the same list) is estimated at 6% for Tashelhiyt, 9% for Figuig, and 10% for Tarifiyt in the same source. Among Moroccan Berber varieties, only Ghomara has a higher percentage of loans than Senhaja (37%), and outside Morocco, also Siwa (26%).

As already noted in Kossmann (2013: 10), some lexical items have both a Berber and an Arabic equivalent in Senhaja. This is not always due to the dialectal preferences. Within the same dialect, one may find a number of such doublets, when the "same meaning" can be expressed either by a native Berber lexeme or a borrowed Arabic one. Sometimes, such doublets can be distributed among generations. For example, in the Bunsar variety, the color terminology is currently being replaced by the Arabic loans. The older generation still uses the Berber terms (alongside the borrowed Arabic terms), while the younger generation prefers the Arabic terms and might have difficulties finding the Berber equivalents. When there are doublets in the LJ-list for a given concept, it is possible to count this as 0,5% borrowing. Alternatively, a more common term among the doublets can be selected and counted as 1% borrowed or native. For the three varieties we have investigated, the percentages of borrowings in the LJ-100 list are as follows:[62]

	Ketama	**Hmed**	**Zerqet**
Without doublets	35%	29%	29%
With doublets	38%	32%	31%

[61] The estimation is largely based on the Zerqet and Hmed Senhaja varieties (Ibáñez 1959).

[62] The entire LJ-100 list for Senhaja can be consulated at https://academia.li/gutova/lj-senhaja (omitting the doublets) and https://academia.li/gutova/lj-senhaja-doublets (with the doublets). For comparison with Ghomara, see https://academia.li/gutova/lj-senhaja-and-ghomara.

The total number of borrowings in Senhaja in LJ list is 40. Since the percentage of borrowings in our lexical database (of over 6,000 entries) is estimated at ca. 50%, this confirms that in LJ list, the percentage of borrowings is lower than across the lexicon. Also, we observe that Ketama (Western Senhaja) has more loans than other varieties. This is also confirmed by the data in the lexical database.

For the shared native vocabulary in the LJ-list, i.e. native Berber words shared by the studied varieties, the comparison is as follows:

	Cognates	**Non-cognates**	**Native lexemes**
Ketama/Hmed	54 (87%)	8 (13%)	62
Ketama/Zerqet	59 (97%)	2 (3%)	61
Hmed/Zerqet	59 (89,5%)	7 (10,5%)	66

When compared with Ghomara and Tarifiyt, we obtain the following results:

	Cognates	**Non-cognates**	**Loan**	**Uncertain**
Ketama/Tarifiyt	52	11	31	2
Ketama/Ghomara	48	9	42	1
Hmed/Tarifiyt	56	15	27	3
Hmed/Ghomara	46	11	42	1
Zerqet/Tarifiyt	63	11	25	2
Zerqet/Ghomara	44	10	44	1

Percentage of cognates vs. non-cognates among native lexemes is as follows:

	Cognates	**Non-cognates**	**Native lexemes**
Ketama/Tarifiyt	52 (82%)	11 (18%)	62
Ketama/Ghomara	48 (84%)	9 (16%)	57
Hmed/Tarifiyt	56 (79%)	15 (21%)	71
Hmed/Ghomara	46 (81%)	11 (19%)	57
Zerqet/Tarifiyt	63 (85%)	11 (15%)	74
Zerqet/Ghomara	44 (81,5%)	10 (18,5%)	54

In what follows, we present some items from the LJ-list that have been borrowed by Senhaja. When there are dialectal differences, this is noted. All borrowings come from Arabic (or, in some cases, from other languages through Arabic).

- ‘fire’: Hmed *lɛafya* (<Ar.) vs. native Berber lexeme in other Senhaja varieties (Ketama *imsi*, Taghzut/Seddat/Bunsar *ṯimsi*, Zerqet *ṯimssi*);[63]
- ‘to go’: Senhaja (Ketama, Taghzut, Seddat, Hmed, Zerqet) uses suppletive imperative form *sir*, PL *sir-u* (vs. Berber verb ‘to go’ in non-imperative forms);[64]
- ‘blood’: Ketama *iḏammen*~ *idammen* (<Berber) ~ *ddem* (<Ar.), Taghzut *iḏammen*; Hmed/Zerqet *ddem*; Ghomara has *adem* which looks like a Berberized form from the Arabic *demm*;
- ‘rain’: Ketama: *ššṯa* (<Ar.), cf. Taghzut *lemšati*; Hmed *ṯimeqqiṯ* (i.e. ‘drop’); Bunsar/Zerqet *anẓar* (<Berber);
- ‘meat/flesh’: Ketama/Seddat/Hmed *llḥem* (<Ar.), Taghzut *aksum*~*aḵsum*, Bunsar *aysum* (<Berber), Zerqet *aḵsum*;
- ‘night’: Snh. *llil* (<Ar.).[65] A native term is used for ‘evening’: Seddat/Bunsar/Hmed/Zerqet *ṯaḏeggʷaṯ*;
- ‘far’: Ketama/Taghzut/Seddat/Bunsar/Hmed/Zerqet *bɛiḏ, bɛeḏ* (Ghomara *bɛiḏ*) (<Ar.);[66] In Zerqet, *bɛiḏ* is an adjective (and considered as “Arabic”, though it occurs in the language), while *bɛeḏ* is a verb (and is considered as Berber, i.e. it is an integrated loan). There is also a causative derivation *ssbaɛḏ* ‘to move something far away’.
- ‘bitter’: in Senhaja (Ketama/Taghzut/Hmed varieties), the Arabic adjective *merr* is sometimes used, alongside the Berber verb *rẓag* (Ketama)/*rẓay* (Hmed);
- ‘hair’: Snh. *ššaɛṛ* (<Ar.); cf. Ketama *aššaɛṛun* ‘single hair’;[67]
- ‘who?’: Ketama/Seddat/Bunsar/Hmed/Zerqet *šku*n (also can be used as ‘what’);
- ‘fish’: Ketama *sserḏin* (coll.);[68] Taghzut/Seddat/Bunsar/Hmed/Zerqet *iselman* (SG *aslem/asyem*) < Berber; Zerqet as most other Senhaja varieties has *sserdin* in the sense ‘sardine’;

[63] Cf. Tasahlit *lɛafit* (Buyusef) vs. *tamest* (Segoual); Massinissa Garaoun, p.c.

[64] Cf. Imperative forms of the verb ‘to come’, which is (Ketama) *arwaḥ* (Seddat *rwaḥ*), vs. the verb *ddu=d* (‘go’ + ventive). Only in child-directed speech (“baby-talk”), the imperative form *addu*~*adu* is used.

[65] This lexeme is also borrowed in other Berber varieties spoken in northern Morocco.

[66] id.

[67] According to Kossmann 2013a: 119, Senhaja has (coll.) *ššaɛr* (cf. Ghomara *ššɛaṛ* <Ar.) vs. a Berber word *anẓeḏ* for a single hair. In Ketama, Arabic loan is used for a single hair, as well. Cf. Zerqet/Hmed *ššeɛṛa* and Warayn *aššɛcuṛ* ‘single hair’. The Ketama form *aššaɛṛun* sounds as a “pseudo-Arabic” term: *aššaɛrun* is not possible in Arabic, because the *tanwin* cannot co-occur with the article. Instead, this form must be rather analyzed as containing the Berber nominal prefix *a-* and suffix *-un*. Cf. also Menguellet Kabyle *akelbun* ‘puppy’.

[68] SG *aserḏin*, PL *iserḏinen*: a loan from Romance languages, ultimately from Latin and Greek, cf. English ‘sardine’ (a herring-like fish); in Ketama, it is used to refer to fish in general. There are not many different types of fish available in Ketama. All of them are referred to as *sserḏin*.

- ‘black’: Ketama *(a)kḥḥel* (< Arabic, Berberized, like all color terms in Ketama); Seddat/Hmed/Zerqet *aberḵan* (in other varieties, Arabic loans are used in as well, but alongside Berber ones);
- ‘to bite’: Ketama *ɛeṭ* (as Ghomara, < Ar.), cf. Seddat/Zerqet *ɛeṭš*; Hmed *bber*;
- ‘wind’: Ketama/Seddat/Bunsar/Hmed/Zerqet *leɛwan* (as in Ghomara; < Ar.);
- ‘smoke’: Ketama/Seddat/Bunsar/Hmed/Zerqet *dduḫḫan* (< Ar.);
- ‘new’: Ketama/Seddat/Hmed/Zerqet *ždiḏ*, PL *ždaḏin* (< Ar.);
- ‘to burn’ (intr.): Ketama/Seddat/Hmed/Zerqet *ḥreq* (< Ar.);
- ‘good’: Ketama/Seddat/Hmed/Zerqet *ṣbaḥ* (*ṣbeḥ*) (verb), *mezyan* (adjective), both < Ar. (among other terms);
- ‘sand’: Ketama/Seddat *ṛṛemla*, Ketama/Hmed *ṛṛmi*, Zerqet *ṛṛmel* (< Ar.);
- ‘leaf (of a tree)’: Ketama/Hmed *afraw*;[69] Seddat *afriw* ~ *lwerqa*, Zerqet *afer*~ *afar*~ *afriw*; for ‘leaf of a book’, a loan is used: *lwerqa, luraq* (< Ar.); Berber F/DIM derived form is *ṯawriqṯ*;
- ‘red’: *(a)ḥmeṛ* (< Arabic, Berberized); Hmed/Zerqet *azeggʷaġ*;
- ‘liver’: Ketama *isattin* (Beni Aisi, Beni Hmed, Lmekhzen, *pl.tant.*) (< Berber). vs. *lkebda* (Sahel village, as in Ghomara < Ar.);[70] Seddat *lkebda*; Bunsar/Hmed Zerqet *ṯasa*;
- ‘to hide’: *ḫebbeɛ* (as in Ghomara < Ar.), Zerqet also *ffer*;
- ‘skin/hide’: Ketama *(ṯ)aželluṭ* (Berberized from Ar. *žželd*); Zerqet/Hmed *žželda*; cf. Tasahlit *ažlud* ‘animal skin’ (Buyusef; Massinissa Garaoun, p.c.);
- ‘heavy’ K. *ṭqil* (as in Ghomara); Seddat *ṭqel* (verb), Ay Hmed *ṯqi* (verb), Zerqet *ḏqel* (verb);
- ‘old’: (about things) Ketama/Hmed/Zerqet *qḏim*, PL *qḏamin* (adj.), Seddat *qḏim* (verb);
- ‘thigh’: Zerqet *lbeḏɛa*;
- ‘thick/fat/strong’: Ketama/Seddat/Hmed Zerqet *ġliḍ*, PL *ġlaḍin* (Ghomara *ġliṭ*) ~ *ṣḥiḥ*, PL *ṣḥaḥin* (< Ar. *ṣaḥā* ‘to recover’, *ṣiḥḥa* ‘health’);
- ‘long’: Ketama/Seddat/Hmed/Zerqet *ṭwil*, PL *ṭwalin* (adj.);
- ‘to fall’: Ketama/Hmed *ḥṣi* (cf. Ghomara *ḥṣel*) < Ar. *ḥṣel* ‘to get stuck’; Seddat *ḏer*; Zerqet *bḏu*; all with suppletive causative *tiyyaḥ* < Ar.;
- ‘dog’: (pan-Snh.) *aherḏan* (< dialectal Arabic *hred* ‘to chew noisily, devour’, see Kossmann 2013a: 156).[71] Also Ketama *ḥerraz* (< Ar. ‘protector, guardian’). An original term for a ‘young dog, puppy’ is now used in the sense ‘adult dog’: *aqzzun*, *(ṯ)aqzzunṯ* ‘female dog’. Cf. Lafkioui 2007a: 260-261. Different from the

[69] Ketama PL *ifrawen* (Beni Hmed) ~ *ifriwen* (Beni Aisi) (dialectal difference in the plural form).

[70] Within Ketama, Sahel village appears to be more Arabized than the other villages.

[71] Senhaja is thus one of few Berber varieties that borrowed an Arabic term for ‘dog’.

Atlas, our language informants are not familiar with the term *ayḏi* (PL *iyḍan*) for ‘dog’;

- ‘sweet’: Ketama/Seddat/Hmed Zerqet *ḥlu*, PL *ḥluwin* (adj.), as in Ghomara, from Arabic;
- ‘shade, shadow’: Ketama/Seddat *ḏḏell* (Ghomara *ḍḍel*); Zerqet *ṯili*, Hmed *ṯiyyi*;
- ‘bird’: Ketama/Seddat/Hmed, Zerqet *afruḫ*, PL *iferḫan* (as in Kabyle) < St. Ar. *farḫ* ‘young bird’;
- ‘salt’ (n.): Ketama *lmelḥ*; Hmed/Zerqet *lemleḥ (lemlaḥ)*; cf. also the verb ‘to salt’: Ketama/Taghzut/Hmed *melleḥ*, Zerqet/Bunsar *meğğeḥ*; the passive participle is *mmelleḥ* (fem. *mmellḥa*, pl. *mmellḥin*). Zerqet also uses an attribute noun *amğaḥ* ‘salty (one)’;
- ‘wide’: Ketama/Hmed *waseɛ* (as in Ghomara), Zerqet *wseɛ* ‘to be wide’ (the noun ‘width’ is *lɛerḏ*);
- ‘star’: Ketama/Hmed/Zerqet *iṯri*; Seddat/Bunsar *nnežma* (PL *nnžum*); in Bunsar, *iṯri* is reserved for a ‘falling star’;
- ‘hard’: verb *qṣeḥ*,[72] adj. *qaseḥ* (pan-Senhaja).

1.9.2. Borrowings by Semantic Field

This Section discusses some Arabic loans in Senhaja, grouped by the semantic field.

1) Body parts

Kossmann (2013a: 126) states that 16 nouns referring to body parts are not borrowed by any Berber language: ‘mouth’, ‘tongue’, ‘tooth’, ‘ear’, ‘eye’, ‘neck’, ‘shoulder’, ‘hand’, ‘finger’, ‘fingernail’, ‘belly’, ‘knee’, ‘foot’, ‘toe’, ‘heart’, ‘bone’. Senhaja data, particularly from Ketama, contradict this observation. Thus, we find:

- ‘tongue’: Ketama *lsan* vs. Bunsar/Zerqet *iles* (Berber *iles* is also found in Ghomara, which generally has a higher percentage of borrowings than Ketama), Hmed *iyyes*;
- ‘tooth’: Ketama/Seddat *aferrum* (PL *iferrumen*), which is probably a loan from Arabic;[73]

[72] Schwa (*e*) is realized as *a* before back consonants (*h q, ḫ, ġ, ḥ, ɛ*, and *ḥ*), but is spelled as <e> in this thesis. See Section 3.2.3.1.

[73] Cognate forms of this word exist in Kabyle (*afermaš* ‘toothless’), Algerian Arabic (*fermaš* ‘id.’), Tasahlit (*furrem* ‘to be toothless’), and Jijel Arabic (*fərrām* ‘to be toothless’). Dallet (1982) has *ffurrem* ‘être ébreché, abimé, détérioré’, *ffermeš, afermeš* ‘être édenté’. Apparently, the word derives from the Arabic root FRM (*aframu* ‘with broken teeth’).

- ‘neck’: Snh. (Ketama, Taghzut, Bunsar, Hmed, Zerqet) *lɛunq/lɛenq* (vs. Ghomara *a(y)ḡeṛṭ*); there is also a separate lexeme for ‘back of the neck’: Ketama *rraqba*, Taghzut *aẓuẓi*, Hmed *ṯamggert*, Bunsar *ṯamggarṯ*, Zerqet/Hmed *ṯamggarṭ* (PL Zerqet *ṯimg(g)^{w}raḍ*, Hmed *ṯimuraḍ*).
- ‘knee’: Ketama (Sahel) *rrukba*, PL *rrkabi*, alongside the Berber term in other villages (as well as in other Senhaja varieties and beyond, including Ghomara) *afuḏ*, PL *ifadden*;[74]
- ‘heart’: borrowed in Bunsar (*lqelb*, PL *qluba*), vs. Zerqet *ul*, Ketama and Hmed *uy(yi)/weyyi* (native Berber). It must be noted that even in those varieties that have a native term for ‘heart’, the Arabic term may still be used (especially in poetry for stylistic purposes).

Some borrowed lexemes related to body parts have been treated above under the “basic lexicon”. They include: *ddem* ‘blood’ (not in all varieties), *žželda* (Zerqet), *(ṯ)aželluṭ* (Ketama) ‘skin’; *ššaɛr* ‘hair’; *lbeḏɛa* (Zerqet) ‘thigh’, *lkebda* ‘liver’ (not in all varieties).

For the remaining body parts, the following terms are loans in Senhaja:

- ‘forehead’: Ketama *nnhir* ~ *aṣentuḥ* (*aṣentiḥ*), Zerqet *aṣenduḥ* (cf. Lafkioui 2007a: 251), Hmed *ṣenṭiḥa* < Arabic *ṣenṭiḥa* (cf. Behnstedt & Woidich 2011: 96);[75]
- ‘eyebrow(s)’ = ‘eyelash(es)’: Ketama/Taghzut/Hmed/Bunsar/Zerqet *lešfaṛ*;
- ‘face’ = ‘cheek(s)’: *lkemara* (PL *lkemaraṭ/ lkmamer*); Zerqet uses *aqebbuz* in the meaning ‘cheek’;
- ‘lip(s)’: Ketama *ššnifa*, PL *ššnayef*; *ašelgum,* PL *išelgam*, coll. *ššlagem* (both from Ar.), Seddat/Bunsar/Zerqet *ašendur,* PL *išenduren* (etymology uncertain); Seddat also *ššnader* ~ *ššlagem*; Taghzut *igenber*;[76] Hmed *anwer*, PL *inuran*;
- ‘mustache’: Snh. *ššlaġem, lmustaš* (from Romance);
- ‘beard’: (Zerqet) *alḥiḥ*, (Bunsar) *ṯalḥiḥṯ* (<Ar.), (Hmed) *ṯammarṯ* (< Berber);[77]
- ‘arm’: Snh. *ddraɛ* (<Ar.);

[74] Cf. *rrekbeṭ* found in parts of Kabylie (Basset 1929: 91).

[75] Cf. Tasahlit *aɛenṭus*.

[76] It is not certain if *ašendur* and *igenber* are related to Kabyle *ašenfir* and are Berber in origin, or a borrowing from the local Arabic *ššnader* ‘lips’ (not widely used in Morocco). Cf. also Tarifit *ššnaḇa* (<*ššnaber*) ‘mustache’.

[77] The word *ṯammarṯ* is used to refer to ‘beard’ and ‘chin’ in Hmed. In Zerqet and Bunsar, the meaning is restricted to ‘chin’.

- ‘kidneys’: Ketama *lklawi* (<Ar.), Hmed *ṯiẓẓiṯ*, PL *ṯiẓẓay*; Zerqet *ṯagezzalṯ*, PL *ṯigezzal*;[78]
- ‘intestines’: Taghzut/Seddat/Bunsar *lmsaren* (<Ar.), vs. Ketama/Seddat/Hmed/Zerqet *aḏan* (<Berber). There is also (Seddat/Zerqet) *ṯamelwaḏat*, PL *ṯimelwaḏaṯin*, Zerqet *ṯameswadat*, PL *ṯimeswaḏaṯin* ‘cecum’ (‘caecum’). We did not find *ṯamfwaḏat* (Kossmann 2013a: 128).

For ‘nose’, we find native Berber *ṯinzarṯ* (Seddat, Taghzut, Hmed), *inzarṯ* (Ketama), *ṯinzar* (Zerqet, Mezduy, Hmed), *anzar* (Bunsar). However, we also find Zerqet *amḫur* ‘nostril(s), nose’ and Hmed *ṯaḫenfurṯ* (PL *leḫnafer*) ‘id.’, cf. Ghomara *leḫnafer* ‘nose’, from Arabic *manḫar*, cf. Bahrayn Arabic *ḫanfūr* (Kossmann 2013a: 116). The Ketama lexeme *aḫenfirṯ* is also related, but is used in the sense ‘face’.

We conclude, then, that the number of borrowings in this domain in Kossmann 2013a: 128 (7 borrowings) is underestimated. However, Kossmann’s general conclusion that Senhaja has a large amount of borrowings in this domain still stands strong.

2) Natural phenomena

In the domain of natural phenomena, the following words were verified: ‘sun’, ‘moon’, ‘star’, ‘thunder’, ‘lightning’, ‘wind’, ‘rain’, ‘snow’, ‘ice’, ‘mud’, ‘dust’, and ‘sand’. Among these terms, four were treated above under “basic lexicon”: ‘wind’: *leɛwan*; ‘rain’: Ketama: *ššṯa*, Taghzut *lemšati*; ‘sand’: *ṛṛemla, ṛṛmel*; ‘star’: *nnežma* (alongside a Berber lexeme). The following words are likewise Arabic loans:

- ‘thunder’: Ketama *ṛṛɛed* (<Ar.) vs. *aggag* found elsewhere in Senhaja (e.g. Zerqet);
- ‘lightning’: Ketama/Seddat/Bunsar/Zerqet *lbarq*~ *lberq* (Ghomara *lebbṛaq*);
- ‘mud’: Ketama/Seddat/Hmed/Zerqet *lġis* ~ *lġayes*;
- ‘dust’: Ketama/Seddat/Bunsar/Hmed/Zerqet *lġebṛa*, Seddat also *laɛžaž(a)*;
- ‘sky’: Snh. (Ketama/Bunsar/Zerqet) *ssma* (<Ar.) ~ *genna* (<Berber). In Senhaja, the word *genna* is usually used in the sense ‘above’, while ‘sky’ is expressed by an Arabic loan, *ssma*.

3) Cultivated Plants

Senhaja has native Berber words for:

[78] Ghomara makes a distinction: human kidney *lkelwa*, vs. animals’ *ṯaḡzelt*.

- ‘barley’: Ketama *imzzin*, Taghzut *(ṯ)imzin* (not pharyngealized), Hmed/Zerqet *imendi*;
- ‘(durum) wheat’: Ketama/Seddat/Taghzut/Hmed/Zerqet *irḏen* ~ *irden*;
- ‘pearl millet’: Taghzut/Zerqet *illan*.

Besides these cereals, there is also:

- ‘maize/corn’: Ketama/Taghzut/Hmed/Seddat *ddra* (< Ar.);
- ‘spelt/emmer’: Ketama/Taghzut/Seddat/Hmed/Zerqet *lfarina* (< Latin/Romance);[79]
- ‘oats’: Ketama/Taghzut/Seddat/Hmed *lḫurtal*, *lḫertal* (< Ar.);[80] vs. Zerqet *insli*;
- ‘rye’: Ketama/Seddat/Hmed/Zerqet *ṯašentiṯ* ~ *ṯišentiṯ*, maybe from Spanish *centeno* through Andalusian Arabic *š.ntiyya* (Kossmann 2013a: 138). In Ketama and Seddat, however, they define this term as a “non-edible plant which is used in order to fill the donkey’s side saddle bags”. In Zerqet, *ṯišentiṯ* stalks are used for thatched roofs, as they are very weather-resistant;
- ‘cereals, grains (generasl term)’: Snh. *lḥeb(b),* PL *lḥbub* (< Ar.) (SG. *ṯiḥebbiṯ*, PL *ṯiḥebba*).

Some other terms related to cereals include:

- ‘seed(s)’: Ketama/Seddat/Taghzut/Hmed/Zerqet *ẓẓrisa* (< Ar.);
- ‘(regular) flour’: Ketama/Taghzut/Seddat/Hmed/Zerqet *ṭṭḥin* (< Ar.);
- ‘fine flour’: Snh. *lfurṣ* (< *force*, from European languages);[81]
- ‘semolina’ (the hard grains left after the milling of flour), ground wheat (of *irḏen*): Ketama/Taghzut/Seddat/Hmed/Zerqet *ssmiḏ(a)* (< Ar.);
- ‘barley seeds, pounded to break apart’: Ketama/Taghzut/Seddat *tšiša*; vs. Hmed/Zerqet *iberyen*;
- ‘barley pounded and roasted in an oven’: Ketama *zembu*, Zerqet *zenbu*, Hmed *zembu~zenbu*.

Note also that Senhaja borrowed these words from Arabic:

- ‘grass’: Ketama/Seddat/Zerqet *ṛṛbiɛ*, Taghzut/Hmed *ṛṛḇiɛ*;

[79] Senhaja speakers use *farina* for spelt/emmer, while it is used for other grain types elsewhere (and for ‘flour’ in Taznatit, cf. French *farine*).

[80] In Senhaja land, they normally do not eat oats, but use it as fodder for the animals.

[81] The word *lfurṣ* is not a Senhaja-specific term. It is used all over Morocco (Agadir, Marrakesh, Casablanca, the Rif...), but not in Algeria. Some Moroccans believe it comes from the (American?) *air force* as fine flour was delivered to Morocco as (post-WWII?) help. Alternatively, the term origins from a brand name. In Zerqet, they explain the difference between *lfurṣ* and *ṭṭḥin* as follows: *lfurṣ* is made from *irḏen lmeɛzuza* (wheat) and is finer than *ṭṭḥin lɛadi* (‘normal/regular flour’) from *lfarina* (spelt/emmer).

- ‘dough’: Ketama *lɛažina*, vs. Taghzut/Hmed *amṯun*, Zerqet *aruk̲ṯi* (general), *afḏir* (dough for cornbread), *ṯafḏirṯ* (a small lump of dough), *aɛğğin* (large lump of dough);
- ‘dry bread/ toast’ (re-baked in the oven and made dry): Ketama *lgušmaṭ*, Taghzut/Hmed/Zerqet *lgešmaḏ* (SG *ṯagešmaṭṭ*).
- ‘dried cookies’: Snh. *lfeqqas* (<Ar.).

The following verbs related to agriculture and cereals are borrowed from Arabic:

- ‘knead’: Ketama/Hmed/Zerqet *ɛžen* (<Ar.), Ketama/Taghzut/Bunsar/Hmed/Zerqet *rfes* (<Ar.), Zerqet also *ugg*^{w} (<Berber);
- ‘winnow’: Hmed/Zerqet *ṣeffi* ~ *ṣeffa* (<Ar.) alongside *zuzzer* (Berber).

4) Vegetables

One vegetable name is practically never borrowed in Berber: *abaw* ‘faba bean’. Senhaja is not an exception here, preserving this term. Some terms for (different types of) beans and other vegetables are borrowed:

- ‘cowpea’: Ketama/Hmed *llubiya*, Seddat/Zerqet *ğğubiya* (<Ar. *lubiya*);
- ‘lentil’: Snh. *leɛḏes*;
- ‘chick-pea’: Snh. *lḥimmeṣ*;
- ‘onion’: Snh. *lebṣel*, Hmed *lesbṣi* (final *el* > *i*), from Arabic;
- ‘eggplant’: Snh. (Hmed/Zerqet) *budenžal, ddenžal*;
- ‘cabbage’: Snh. *lekrum/ lekrumb*;
- ‘carob (tree)’: (Hmed/Zerqet) *lḫarrub/ lḫerrub*, *ṯaḫerrubṯ* ‘carob tree’;
- ‘peanut’: Snh. *kawkaw*.

5) Fruits

- ‘date’: (Snh.) *ṭṭmar*~*ttmar*;[82]
- ‘fig’: (Snh.) *ṯazart* (< Berber), but the Arabic loan *lbakur* (*lbak̲ur*) (collective; unit noun *ṯabak̲urṯ*) is used to refer to the first figs of the season;[83]
- ‘melon’: *lbeṭṭiḫ*; there is also *swihla* (melon type);
- ‘watermelon’: *ddellaḥ,* (unit noun) *ṯadellaḥṯ* (<Ar. *dellaḥ*~*dellaɛ*);
- ‘apple’: *tteffaḥ*/*ṭṭefaḥ*, (unit/tree) *ṯatteffaḥṯ*;
- ‘pomegranate’: *ṛṛeman*, (unit/tree) *ṯaṛemmant*;
- ‘pear’: *lfiras*, (unit/tree) *ṯafirast* (Seckel pear) (<Latin); *lingas*;

[82] The borrowing of this lexeme is not surprising, since dates do not grow in the Senhaja land.

[83] There is also *lġuddan* ‘a variety of fig’ (Zerqet).

- ‘quince’: *ssferžel*, (unit/tree) *tasferželṯ*;
- ‘almond’: Ketama *llawz*, majority of Snh. *lluz* (Hmed ‘tree’ *ṯayuzeṭ*), Zerqet *ǧǧuz* (< Ar. *llawz*), *ṯal(l)uzṯ* ‘almond tree’ (Lafkioui 2007a: 74);[84]
- ‘walnut’: Ketama *lzuz*, Taghzut/Bunsar *ǧǧuz* (< Ar. *ǧawz*; false friend with Zerqet *ǧǧuz* ‘almond’ < Ar. *llawz*), Hmed *lǧuz*; Zerqet *ṯaquqṯ* (Taghzut and Hmed *taquqeṭ*) (individual/tree). Ketama *ažužt* ‘walnut tree’;
- ‘olive’: Ketama/Zerqet *zziṯun*~ *zzitun* (used for domesticated olives); tree: *ṯazitunṯ, ṯazitunt*; the native Berber *azemmur* is reserved for wild olives. In Hmed, the word *azemmur* is used for ‘olives’ in general (tree: *ṯazemmurṯ*). There is also *berri* (type of olives), tree: *ṯiberriṯ*;
- ‘peach’: (Snh.) *lḫuḫ*.

6) Domestic animals

In this section, some terms for (domestic) animals in Senhaja are discussed. Some of them are borrowed from Arabic, while some are native Berber.
Regarding the term for ‘camel’, there is a division in Senhaja: some varieties (including Ketama) use an Arabic loan *žžmel*, while others (e.g. Zerqet) preserve an older term *alġum* (PL *ileġman*).[85]

Senhaja borrowed the following terms related to horses:[86]

- ‘horse/stallion’: Ketama/Seddat/Hmed *lɛewd (lɛawd, lɛewḏ, lɛawḏ)*, *lḫayl* (alongside the Berber term *agemmar* that is mostly used by old people, not in Hmed);
- ‘packhorse’: Hmed *akidar*, PL *ikidar* ~ *ikidaren*;
- ‘mare’: Ketama/Seddat/Hmed *lɛewda* (*lɛawda, lɛewḏa, lɛawḏa*) (alongside Berber *agemmarṯ*, not in Hmed).

While the term for a ‘male mule’ is native Berber (*aserdun, aserḏun*), female mules can be referred to in Ketama by loanwords from Arabic. Thus, there is a dialectal difference: Beni Aisi *lebhima* (< Ar.), Talghunt *ddabba* (< Ar.) vs. Beni Hmed *aserdunṯ* (native Berber, a feminine derivation from *aserdun*). In Hmed (Tafurnut), both *ṯaserdunṯ* and *lebhima* are used, while *ddabba* refers to any animal.

[84] There is also *asemmum* ‘young almonds’ (Zerqet).
[85] On *alġum*, see Kossmann 2005b: 27-55. Ketama/Western Senhaja and Ghomara seem to be the only Berber varieties that borrowed this term from Arabic (Kossmann 2013a: 156). The fact that this lexeme is borrowed is not surprising, however, as there are no camels in the Senhaja region.
[86] It must be noted that horses are not very common in the Senhaja land.

For ‘cow’, no Arabic loans are found. However, the most common Berber term *ṯafunasṯ* is only rarely found in Senhaja (restricted to Taghzut and Hmed varieties). Other varieties have *ṯamwat* (Seddat, Hmed, Bunsar, Zerqet), *amgat* (Ketama). For the ‘bull/ox’, we find *aɣenduz* (Ketama, Taghzut, Seddat), *aynduz* (Zerqet, Bunsar, Hmed); another term is *azeggir* (Ketama), *azger/azgar* (Hmed, Bunsar, Zerqet, Mezduy). There is also *abeɛɛir* (Ketama) and *aɛbbiz* (Bunsar). For ‘heifer’, Zerqet and Hmed have *ṯaynduzt* (a feminine derivation based on *aynduz*). For ‘calf’, we find Ketama *abaɛužu*, Seddat *aɛbbiz* (same as ‘bull’ in Bunsar), and Hmed *aɛbibez* (also *aɛbuz* for a ‘newborn calf’).[87]

For ‘goat’ (in singular), a native Berber term is used: *ṯaġaṯ* (Zerqet, Seddat), *aġaṯ* (Ketama). The plural form is usually a loan from Arabic, *leksiba* (Zerqet, Seddat, Ketama). Ketama also has the plural form *iġaṯin* (this would be considered a mistake made by children or language learners in Zerqet) or *ṯiḫsin*.[88] For the ‘billy goat’, Zerqet and Hmed have *aɛerban*. Ketama has diverse terms for ‘goat kid’, among which *abḫiḫ, akbaš ~ ikbaš, amhar* (also in Seddat). Zerqet and Hmed have *iġežḍ* in this meaning.

For ‘sheep’ (male and female), Senhaja employs nouns based on onomatopoeia: ‘male sheep/ram’ is *abeɛɛaš* (Ketama, Seddat, Hmed, Zerqet), and ‘female sheep’ is *(ṯ)abeɛɛašṯ*.

For ‘dog’, Senhaja does not preserve the Berber term *aydi*. The most common term (found across Senhaja) is *aherḏan*, while Ketama also has *ḥerraz* (see above under “basic lexicon”). The original term for ‘puppy’, *aqezzun*, is also widely used, and is the base for the feminine derivation *(ṯ)aqezzunṯ*. There is no designated word for ‘puppy’; a descriptive phrase *afruḫ n uherḏan* ‘the young of the dog’ may be used. The lexeme *afruḫ* also means ‘bird’, but can generally apply to the young of animals (‘cub’). Thus, in the meaning ‘lamb’, the phrase *afruḫ n ubeɛɛaš* (lit. ‘the little/young of the sheep’) is usually used.

For poultry, both native terms and loans are found. For ‘rooster’, the native *ayaziḍ* (Zerqet, Seddat, Bunsar) is found alongside *aferruž~afeṛṛuž* (Zerqet, Seddat < Ar.), *aɛettuq* (Ketama <Ar.) and *afullus~afulus* (Ketama, a loan from Latin *pullus*, cf. Kossmann 2013a: 157). Taghzut and Hmed have *amudden* (an agent noun derived from the Arabic verb *wdden* ‘to call for prayer’) because roosters are calling in the morning like the *azan* calls for prayer.

For ‘chicken, hen’, a similar situation is observed. The terms are morphologically feminine derivations based on the male counterparts. However, masculine and feminine pairs are sometimes spread across different Senhaja varieties. Thus, we have

[87] Interestingly, in Ghomara, *aɛbibez* is a diminutive of *aɛebbiz* ‘calf’ (Mourigh 2015: 117).

[88] The term *tiġsi* was originally ‘goat/sheep’ (cf. Kossmann 2013a: 153), but apparently the sense became restricted in Ketama.

(native) *ṯayaziṯ* (Zerqet, Seddat, Bunsar), *aful(l)usṯ* (Ketama), *ṯafullusṯ* (Hmed), and *ṯaferružṯ* (Taghzut). For the young of the chick, we find Zerqet *afellaṯ*, Seddat *afellus* (from Latin *pullus*), Bunsar *afeṛṛuž* (which is used in the sense 'rooster' in Zerqet and Seddat), Ketama *abeğğiw*, Taghzut *asiwsiw*, Hmed *asiḵsiw* (onomatopoea).[89]

7) Insects

Among names of different insects, the following terms are borrowed:

- 'worm': Ketama has Arabic *dduda* next to the native Berber words (see Section 1.10.1.1, isogloss 6);
- 'spider': Zerqet and Seddat employ the Arabic loan *lɛankbut*. In Ketama, as in Ghomara, this term rather refers to the spider's web. In Zerqet and Seddat, one also finds an alternative term *ḥenna Fuf(f)u/ nan(n)a Fuf(f)u* ('grandmother Fuffu');[90] sometimes, e.g. in Seddat, also *žeddi Fuffu* 'grandfather Fuffu'. Zerqet also uses a descriptive term *ssif lġar* (lit. 'sword of the cave').[91] In Ketama and Hmed, the term for 'spider' is *rrṯila* (as in Ghomara);
- 'mud dauber' (a type of wasp that builds its nest from mud): Ketama *msɛuḏ lbennay* 'Mseud (name proper) the Builder', Zerqet/Hmed *saɛi(d) lbennay* 'Said the Builder', Zerqet also *irẓẓi lmesmum* 'poisonous wasp'.

8) Metals

The following names of metals are loans in Senhaja:

- 'iron': Ketama/Zerqet/Hmed *leḥḏiḏ*; most Berber languages preserve Berber *uzzal*; in Zerqet, the word *uzzal* is only preserved in the meaning 'knife' (Hmed *uzzay*, fem. *ṯuzzalṯ*, Taghzut *ṯawzzaṯ*);
- 'copper': Ketama/Hmed/Zerqet *nnḥas*;
- 'lead': Hmed *leḫfif* (< Ar. *ḫfif* 'light'); Zerqet *plomo* (<Sp.) or *plomb* (<Fr.);
- 'tin': Ketama/Hmed/Zerqet *lqezdir* ~ *zzeng*;
- 'gold': Ketama/Hmed/Zerqet *ddheb* (many Berber languages preserve *ureġ*);
- 'silver': Ketama/Hmed/Zerqet *nnuqra* ~ *nneqra* (vs. Berber *aẓref*).

[89] The Taghzut term *asiwsiw* is used for the young of the chicken or partridge.

[90] The same term is sometimes used in Seddat in fairy tales as a synonym of 'Ogress', something scary (when talking to children). In Hmed, *nanna fuffu* means 'dandelion' (when it is white). In Ketama, *fuffu* is a baby-talk term for 'fire'.

[91] This name comes from a story about Prophet Mohammed. It is being told that Prophet Mohammed and his friend entered a cave, and a spider came and wove a web in the entrance of the cave, so that those who were looking for the prophet to kill him would not think that he was inside the cave. The sword is a sign of power and protection, and it said that the cave used the spider as its sword to protect the prophet.

1.9.3. Verbs

According to estimations in Kossmann (2013a: 158), Senhaja has 32% of verbs borrowed (in a list of 120 verbs). Only Siwa and Ghomara have more borrowings, 35% and 49%, respectively. Thus, the percentage of borrowings is high in both the "basic lexicon" and the verbs list. This shows that verbs, just like other word classes, can be routinely borrowed by Berber, and that Senhaja is influenced by Arabic in various domains ("basic vocabulary", as well as a larger sample of a specific word class).

Among the "basic verbs" that are normally not borrowed by any Berber language, a note has to be made regarding Senhaja: the verb 'to come' is a native Berber lexeme, but its imperative form is suppletive (borrowed from Arabic): *arwaḥ*, PL *arwaḥu*. The same situation is observed with the verb 'go', which has the Arabic suppletive imperative form, *sir* (PL *siru*).

It is also worth mentioning that verbal nouns in Senhaja are typically borrowed from Arabic, and thus have suppletive relationship to the native Berber verbs. A few native Berber verbal nouns exist, some alongside the Arabic borrowed ones. Thus, the native Berber verb *ḵrez* 'to plow' has two verbal nouns, the native Berber *ṯaḵerza* (Ketama, Bunsar)/*ṯayerza* (Taghzut, Hmed, Zerqet), alongside the borrowed *lḥerṯ* 'plowing'. Furthermore, many verbs have suppletive relationship with the borrowed Arabic causatives and passives. Thus, different Senhaja varieties have different lexemes for 'to fall' (e.g. Zerqet *bḍu*, Seddat *ḍer*, Ketama/Hmed *ḥsi*, Taghzut *ttaki*), while there is a common causative *ṭeyyeḥ* borrowed by all these varieties. Borrowed Arabic participles also often have suppletive relationship to the native Berber verbs (cf. Section 2.5).

Some verbs have already been treated above under "basic lexicon", e.g. *ɛeṭ*~ *ɛetš* 'to bite'; *ḥreq* 'to burn', *ḫebbeɛ* 'to hide', *ḥsi* 'to fall', as well as verbs describing state/quality (some of which can be also used as adjectives), e.g. *bɛeḏ* 'to be far', *ṣbeḥ* 'to be beautiful/nice/good', *ṭqel*/*ḏqel* 'to be heavy', *ġliḍ* ~ *sḥiḥ* 'to be fat/thick/strong', *ṭwil* 'to be long', *ḥlu* 'to be sweet', *wseɛ* 'to be wide', *qseḥ* 'to be hard'. Below are some other verbs that have been borrowed in Senhaja:

- 'to swim': *ɛum*;
- 'to lie': Hmed/ Zerqet *keddeb* (Zerqet also *skerkes*); Ketama only *serkes*; agent noun *lkeddab* 'liar';
- 'to cook': *ṭiyyeb*;
- 'to knead': (pan-Snh.) *ɛžen*, *rfes*, Zerqet also *ugg*^{w} (native Berber);
- 'to roast, grill': *šwi* (not used in Hmed), Hmed (also in Ketama and Zerqet alongside *šwi*) *gges* (native Berber);
- 'to fry': *qli* (Hmed *qyi*);

- ‘to sew’: (Ketama) *ḫeyyeṭ*, (Hmed/Zerqet) *ḫeyyeḏ*; Ketama/Zerqet also *reqqeɛ*;
- ‘to sow’: Ketama/Hmed/Zerqet (pan-Senhaja) *ẓṛeɛ*;
- ‘to measure (length/distance)’: *ɛbeṛ* (Taghzut/Hmed *ɛḇeṛ*);
- ‘to weigh’: *wzen*;
- ‘to weigh/measure (cereals)’: (Zerqet) *ḵiyel* (not in Ketama or in Hmed, where only *wzen* is used);
- ‘to count’: *ḥseb* (*ḥsab*) (also *sḥab* with a metathesis);[92]
- ‘to think’: *fekker*, syn. *ḫemmem*;
- ‘to remember/remind’: *fekker*, *ɛqel* (Ketama/Hmed *ɛqi*);
- ‘to understand’: *fhem* (cf. borrowed Arabic reciprocal *ttfahem*);[93]
- ‘to learn’: *tɛallem*; cf. also *ḥfeḏ* ‘to memorize’;
- ‘to teach’: *ɛallem*;
- ‘to be jealous’: *ġir*;
- ‘to envy, be envious’: *ḥsed* ~ *ḥseḏ*;
- ‘to hate, not to want’: *bġeḏ*;
- ‘to hate’: *krah/ḵrah*;
- ‘to cut’: *qeṣṣ, ġreṣ, qṭeɛ/qḍeɛ, qeṭṭeɛ*,[94] passive *nqeṭṭeɛ/tqeṭṭeɛ*;
- ‘to tear’: *šerreg* (Hmed *čerri*);
- ‘to demolish, destroy, tear down’: *reyyeb*;
- ‘to dig’: (Ketama/Zerqet) *ḥfer* (vs. native Berber verb *ġez* in Hmed);
- ‘to hang’: *ɛelleq*;
- ‘to pour’: *kkeb(b)* (Zerqet), *kebb* (Hmed) ~ *ḫwi*;
- ‘to throw’: *siyyeb* (Hmed *siyyeḇ*); Zerqet also *rmi*; Hmed also *ḏraḥ*;
- ‘to pull’: *žbeḏ*;
- ‘to untie, unsaddle (etc.)’: *fseḫ*;[95]
- ‘to open’: Zerqet/Bunsar/Hmed *fteḥ* (in Zerqet alongside *rzem*);
- ‘to look/see’: Seddat/Bunsar *ḫzeṛ* (<Ar.) vs. Ketama/Hmed *ẓer* (native Berber). Zerqet has both lexemes, used in different contexts: *ẓeṛ* ‘to see’ and *ḫzeṛ* ‘to look at, to watch.’
- ‘to winnow’: *ṣeffa/ṣeffi* (Zerqet, Hmed), alongside *zuzzer* (<Berber);[96]

[92] This lexeme can be also used as an “impersonal verb” (without PNG affixes) in the sense ‘to reckon’ or ‘to seem (to someone)’.

[93] In Zerqet, this lexeme has a derived causative *sefhem*.

[94] All four lexemes can be found in the same variety (e.g. in Zerqet, Hmed), with a slight difference in meaning, e.g. *qeṭṭeɛ* ‘cut with a knife/scissors’, *qḍeɛ* e.g. ‘cut water/electricity’ (Hmed), ‘cross (the road)’ (Zerqet).

[95] In Zerqet, the Berber word *rzem* has the meaning ‘to open’ or ‘to let (animals) out’ and the verb *fsi* has the meaning ‘to melt’ (not ‘to untie’), unlike in some other Berber varieties.

[96] The Berber word *zuzzer* means specifically ‘to winnow’, while the Arabic loan has a broader meaning (thus, it could also mean ‘to sieve water/milk’).

- ‘to clean’: Hmed *neqqi*, Zerqet *neqqa* (cf. adj. *neqqi* ‘clean’); syn. *feyyel*; syn. *ḫemmel* (Hmed *ḫemmi*) ‘to clean thoroughly’.

The following two verbs are among the earliest Arabic loans in Berber (borrowed by many Berber varieties):[97]

- ‘to fast’: *aẓum* (Hmed *uẓum*) < Ar. *ṣām*;
- ‘to pray’: *ẓẓall* (Zerqet/Bunsar *ẓẓaž*) < Ar. *ṣallā*.

1.9.4. Arabic Influence on Senhaja besides Lexicon

Arabic has exercised influence on all language domains in Senhaja. Arabic loans constitute just one example of this influence.

1.9.4.1. Phonology

Arabic influence on phonology is difficult to describe, as phonologies of Berber and (the surrounding) Arabic dialects are often (nearly) identical. This has been observed, for example, for Ghomara Berber and the local Arabic, for Tasahlit Berber and Jijeli Arabic, and the same can be said about Senhaja Berber and Arabic. Originally Arabic phonemes have become part of the Berber sound inventory, and can be even used in native Berber words (see Kossmann 2013a: 199). Those borrowed phonemes must have initially had expressive semantics. Many of the words that contain the borrowed Arabic consonants have no counterparts without the borrowed phonemes. It is thus possible that they do not have the expressive semantics any more. A few Senhaja examples with the borrowed consonant include (cf. Kossmann 1999a: 247):

- ‘mouth’: (Mezduy) *aqemmum* (< *imi*) (the rest of Senhaja: *imi*);
- ‘back’: (Ketama/Hmed/Zerqet) *aɛrur* (< *arur*, not found in Snh.);
- ‘belly’: (Snh.) *aɛeddis*, *ṯaɛeddiṯ* (< *adis*, not found in Snh.).

Some other words do not add, but replace the original (native) phoneme by a new (“expressive”) one, e.g. *aqezzun* ‘dog’ (elsewhere found with *g* or *k* instead of *q*) (cf. Kossmann 1999a: 243).

[97] See Kossmann 2013a: 177 regarding the phonetic correspondence of Arabic *ṣ* and Berber *ẓ*. At the same period, the word ‘mosque’ was borrowed: Snh. *ṯimezgiḍa* (Ketama *mezgida*) < Ar. *masǧid* (where Arabic *s* and *ǧ* correspond to Berber *z* and *g*).

1.9.4.2. Morphology

In morphology, Arabic influence is easier to detect than in phonology. A word class that consists almost entirely of Arabic borrowings, is the class of numerals. Arabic numerals are found in most Berber varieties, so this is not a feature limited to Senhaja. However, some Berber varieties still preserve a few Berber numerals. In Senhaja, only the numeral 'one' is Berber (and even so, when counting, the borrowed Arabic numeral 'one' is used).[98]

1) Adjectives

In Senhaja, one finds many borrowed Arabic adjectives. These are borrowed together with their derived forms (feminine singular and plural), e.g. *mezyan* 'good', FS *mezyan-a*, PL *mezyan-in*.[99] The borrowed Arabic adjectives contrast with the native (Berber) adjectives that developed in Senhaja from the stative verbs (e.g. Ketama *meẓẓi* 'small', *meqquṛ* 'big'). Berber adjectives distinguish the same forms as borrowed Arabic adjectives, i.e. MS, FS and PL, e.g. (Ketama) MS *meẓẓi* 'small', FS *meẓẓi-ṯ*, PL *meẓẓi-n*. However, the gender/number markers differ from those found with the Arabic borrowed adjectives. There is thus a split in Senhaja adjectives according to their origin. The class of Arabic adjectives is much larger than the class of Berber adjectives. Both classes of adjectives, in spite of the different origins, have the same function in syntax. The same feature is found in Ghomara (Mourigh 2015: 205-206).

Within Senhaja, different varieties behave differently when it comes to the old stative verbs. In Ketama and in Hmed, these lexemes are adjectives, as they cannot be marked for person. In Taghzut, the corresponding lexemes are also adjectives, although they can be conjugated.[100] In Seddat, old stative verbs became regular verbs (with the regular marking), albeit lacking the aspectual distinctions, different from the class of (borrowed) Arabic adjectives that bear no person marking.

In Zerqet, the same lexeme can appear with three different types of morphological marking: 1) special PNG marking (carried out by suffixes only), e.g. *meqquṛ-eḏ* 'you (SG) are old'; 2) regular PNG marking (carried out by prefixes and/or suffixes), e.g. *ṯ-emeqquṛ-eḏ* 'you (SG) are old'; and 3) adjectival marking, where only gender and number (but not person) are distinguished, e.g. *ḵem meqquṛ-eṯ* 'you (FS)

[98] The same situation is found in Ghomara, Tarifiyt, Iznasen and Beni Snous (Kossmann 2013a: 309). On a study of the borrowing of Arabic numerals, see Souag 2007.

[99] Many Arabic adjectives form plural by means of vowel apophony. Those are also borrowed in Senhaja.

[100] See Section 7.4 on conjugated adjectives. Taghzut also allows for person marking on borrowed Arabic adjectives and participles.

are old'.[101] This does not mean, however, that Zerqet preserves ancient stative conjugation.[102] Also, this morphological distinction does not exist in all persons. Thus, for 1P, only the regular verbal marking is used (*n-meqquṛ* 'we are old'). As such elements do not behave in the same way among the Senhaja varieties or even within the same variety, it is difficult to categorize them as a single word class. In this thesis, they are discussed together under 'Adjectives' and 'conjugated adjectives' (Chapter 7). All such words could have also been labelled as 'quality words', keeping in mind that they have different behavior in different varieties. At the same time, quality expression can be also achieved by other means, e.g. by using attributive nouns or quality verbs.

The fact that Senhaja Berber developed a new adjectival category (probably partly under the influence from Arabic) on the basis of native stative verbs, makes Senhaja different from many other Berber varieties, where nominal modification is usually carried out by other means, such as the use of (stative or regular) verbs or nouns used as attributes. In Senhaja, it is also possible to find examples where one noun modifies the other noun.[103] Color terms are often attribute nouns in Central and Eastern Senhaja, e.g. (Hmed) *nek(k) ġur-i aḫam ḏ awṛṛaġ* 'I have a yellow house', where the noun *awṛṛaġ* 'yellow (one)' modifies the noun *aham* 'house'.[104] Some other examples of attribute nouns in Senhaja include:

- (Bunsar/Zerqet) *awssar* 'old (one)';
- (Hmed/Zerqet) *aḥeẓẓuḏ* 'naked (one)';
- (Taghzut/Seddat/Zerqet) *azayzun*, (Ketama) *absuḥ* 'dumb, unable to speak';
- (Seddat/Bunsar/Zerqet) *ažɛwar*, (Seddat/Zerqet) *aḏkwar*, (Ketama/Bunsar/Taghzut) *lɛweṛ/lɛwar*, (Zerqet) *aḏerġal* 'blind'; etc.

Alternatively, one can use a verbal phrase, e.g. 'He does not see' (Ketama: *i-ẓer=šay*) as an equivalent of 'He is blind' using an attribute noun (Ketama: *netta lɛweṛ*). To express some meanings, using a verb is the only option, e.g. (Ketama) *i-tsela=šay* 'He is deaf', lit. 'He does not hear'. Here, no adjective or an attribute noun is available. The choice is lexical. To sum up, the following alternatives exist in Senhaja to express state/quality:

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[101] These forms are found alongside the dynamic verb *mġur* 'to be(come) old, to grow up', e.g. *ṯe-mġur-eḏ* 'you (SG) grew up/became old'.

[102] On stative verbs, see Basset 1952; Galand (1980, 1990, 2002a), and Kossmann 2009c. On stative-based forms in Senhaja, see Lafkioui 2009b: 111 and Lafkioui 2007a: 165.

[103] The status of "attribute nouns" (ie. nouns that can be used to modify other nouns) is debatable in Berber studies (cf. Kossmann 2013a: 279 ff).

[104] In Ketama, all color terms are loans from Arabic. They can be (optionally) Berberized and turned into nouns, e.g. *ḥmer* 'red' ~ *aḥemraw* 'a red one'. Cf. Appendix 4.

- attribute nouns;
- regular verbs (with a regular marking);
- Berber adjectives (conjugated or not);
- borrowed Arabic adjectives.

The first two categories can be represented by etymologically Berber or borrowed words. Thus, 'blind man' can be expressed by a native word (e.g. Zerqet *aḏerġal*) or a loan (e.g. Ketama *lɛweṛ*). Similarly, verbs describing state/quality can be native or borrowed, e.g. (Zerqet) *i-rġa* 'it (M) is hot' vs. (Zerqet) *i-ḏqel* 'it (MS) is heavy' (< Ar. *ṭqil* 'heavy'). Stative verbs and adjectives that developed from them are always native Berber. Stative verbs are few in numbers and form a closed word class. In Seddat, this class no longer exists, as stative verbs have merged with regular verbs. Borrowed Arabic adjectives, by contrast, are ubiquitous. They are frequently encountered in natural discourse and texts of all genders. Last but not least, borrowed Arabic participles can also be used as attributes.

2) Participles

Arabic participles constitute another word class that has been borrowed by Senhaja.[105] Just like Arabic adjectives, they also keep their original morphology, e.g. *maši* 'going', FS *mašy-a*, PL *mašy*-in. Again, this feature is shared by Senhaja and Ghomara (Mourigh 2015: 217ff). There are two classes of participles: active and passive. Passive participles usually have the prefix *m(e)*-, and the same gender/number distinctions as active participles, e.g. *mesdud* 'closed', FS *mesdud-a,* PL *mesdud-in*, or its synonym *mbelleɛ*, FS *mbellɛ-a*, PL *mbellɛ-in*. Sometimes, this pattern (the prefix *m*- and the vocalic scheme) is applied to the native Berber verbs, e.g. (Taghzut) *m-erguž* 'closed', FS *m-erguž-a*, PL *m-erguž-in*, derived from the verb *rgež* 'to close' (cf. Zerqet *rgel*, Ketama *rgi*). In most cases, however, we find a suppletive relation between the native Berber verb (such as Zerqet *rgel* 'to close') and the borrowed Arabic participle (*mesdud* ~ *mbelleɛ* 'closed'). In many cases, the use of the Arabic passive participle is the only way to express the intended meaning, as many native verbs do not accept passive derivation. While in Ghomara, Berber passive derivation has been lost, it still exists in Senhaja. However, it is used only rarely, and far not as frequently as borrowed Arabic passive participles.

As regards Arabic active participles, in some contexts, they could be substituted by the native Berber verb in the Imperfective aspect, e.g. *i-ttuḏu* 'He walks' (imperfective verb form) ~ *netta maši* 'He is walking' (active participle). However,

[105] Berber participles, here referred to as 'relative forms', are a different category.

there are some differences in the use of Berber imperfective forms and Arabic active participles. Arabic participles generally describe a state, while Berber Imperfective aspect generally describes a continuous or habitual action. Thus, the Ketama form *i-skurrum* 'he sits' (imperfective verb form) is not totally equivalent to *netta gales* 'he is sitting/seated' (active participle). The latter describes a state, and is not used to describe a habitual action. The same observation applies to other Imperfective/ Participle pairs, including *ttuḏu~maši* 'walking'. This difference can be approximated in English with the present tense for Berber imperfectives, and present participle for borrowed Arabic participles.

The following table illustrates the suppletive relation between some Berber verbs and the corresponding Arabic active and passive participles. While the participles generally have the same form in different Senhaja varieties, the corresponding verbs often differ depending on the variety. Here, the verb forms found in Hmed variety are listed. The corresponding participles are found across Senhaja. For the sake of space, only MS forms of the participles are listed. Only a few verbs have both active and passive participles, so there are necessarily some gaps in the table.

Verbs and corresponding participles in Hmed

Verb	**Active participle**	**Passive participle**	**Translation**
ečč	wakel	mukul	eat
ṭṭu	nasi	mensi	forget
skurem	gales	---	sit
ddu	maši	---	go, walk

3) Verbal Nouns

Verbal nouns form another class of words that has undergone extensive borrowing from Arabic and that often has suppletive relation to the Berber verbs, although some native verbal nouns exist as well (Section 6.5.4.2). Some borrowed Arabic verbal nouns have duplicates that have a morphological shape of Berber native verbal nouns (cf. Section 6.5.4.5), e.g.

Verb (loan)	**Verbal Noun (B. morphology)**	**Verbal Noun (Ar. morphology)**	**Translation**	**Etymology**
ḫḍeḇ	aḫḍaḇ	lḫḍaḇa/lḫṭaba/ ḫḫuṭuba	betroth	< Ar. *ḫṭeb*

Some suppletive borrowed Arabic verbal nouns exist alongside native Berber verbal nouns derived from the verb, e.g. (Hmed)

Verb (<B.)	Verbal Noun (<B.)	Verbal Noun (<Ar.)	Translation
k̲šem	ak̲šam	ddḫul	enter

4) Collective-unit noun distinction

Arabic influence on Senhaja morphology is also visible in the introduction of the collective–unit noun distinction (cf. Section 6.5.1.2). (Unmodified) Arabic loans are used for collectives, while Berber feminine singular circumfix *t̲-…-t̲* is used for the unit nouns. The following examples are pan-Senhaja (in Ketama, only the suffix *-t̲* is pronounced, hence the prefix *t̲-* is in parentheses).

Collective	Unit noun	Translation
lbak̲ur	(t̲)abak̲urt̲	early fig
lbeṭṭih	(t̲)abeṭṭiḫt	melon

The distinction between collectives and unit nouns is most frequently found in terms for fruits and vegetables.

1.9.4.3. Syntax

In the domain of syntax, Arabic influence is visible, for example, in negation (see Section 5.6 on the negation of the verbal predicate, and 6.1.2.2 on the negation of the nominal predicate), e.g.

- the use of preverbal negators *ma* and *la* (limited to specific contexts);
- the use of postverbal negators *š, ši, šay* (from Ar. *šay?* 'thing');
- the use of the negative element *maši*, especially with non-verbal predicates (e.g. with nouns, adjectives, and participles).

Arabic influence is also visible in the use of Arabic conjunctions:

- 'and': *w* (logical connector; (rarely) coordination);
- 'until' (temporal conjunction): *ḥetta* (other Berber varieties use Berber preposition *ar~al*); *ḥetta* is also used in Ghomara (Mourigh 2015: 264);
- 'before' (temporal): *qbel* (Hmed *qb̲el*);

- ‘if’ (counterfactual): *(l)uka* ~ *ka* (< Ar. *lukan*). Cf. Ghomara *ka*, Iznasen, Kabyle, Nefusa, Awjila *lukan*, Sokna *kan* (Kossmann 2013a: 365);[106]
- ‘in order to, so that’ (purpose): *baš*;[107]
- ‘because’: *(ε)laḥeqqaš*, *ḥit, ḥitaš*.

In interrogatives, Arabic influence is visible in a number of borrowed question words:

- ‘who/what’: cf. *škun* (cf. Lafkioui 2007a: 238). Zerqet also preserves the Berber *mi*, which however does not appear alone.[108] As an independent question word, only *škun* is found. In some contexts, it can be abbreviated to *šk*, e.g. when followed by the relative marker *a*: *škˆa* ‘who/what is it that…?’ We have not found the question word *man* reported in Lafkioui 2007a: 238;
- ‘when’: Ketama *faywaḫ~maywaḫ*, Hmed *fuqaš, faywaḫ*, Zerqet *fuqaš, faywaḫ, fayeḫ*, from Arabic *f* ‘in’ + *weqt/weḫt* ‘time’. Cf. Ghomara *fhaywe̱k̲*. Lafkioui (2007a: 240) also lists *faḫš, aḫš, melmi* (for Zerqet). We have not found this;
- ‘where to’: *lay(n)* (Zerqet: only *layn*) (cf. Lafkioui 2007a: 239); it must be noted that Ketama also has the native *amani* alongside the borrowed term for the same meaning;
- ‘which (one)’: *(a)š-men* ~*škun* (cf. Lafkioui 2007a: 161-3), as in Ghomara, e.g. *(a)š-men ṯamġarṯ* ~ *škun ṯamġarṯ* ‘which woman’.

Finally, both Senhaja and Ghomara employ *ka* as a polar question marker. As pointed out by Souag (2018: 64), this must originate from the Arabic *lukan* ‘if’ rather than from the question word *k̲a* ‘how’, which is pronounced with a fricative *k̲*.

1.9.5. Conclusions

Berber languages are known to have been influenced by Arabic for a long time. This is especially true for Senhaja, which is spoken in an area surrounded by Arabic and which has been in intense contact with it. It is not surprising, then, to find a lot of Arabic elements in Senhaja. Some elements, however, are more apt to be borrowed than others.

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[106] The same element *ka* is used as a yes/no question marker (alongside *waš*). In Hmed variety, the counterfactual ‘if’ is usually realized as *kʷa* and is thus distinguished from the question marker *ka*. In Zerqet, the counterfactual ‘if’ is *uka* and is also distinguished from the question marker *ka*.

[107] Such constructions can be also expressed without any explicit conjunctions. When a conjunction is used, it is a loan from Arabic. The same conjunction is found in Ghomara, Kabyle, Ouargla, and Mzab (Kossmann 2013a: 366).

[108] This element features in composite question words such as *gi-mi-ḏi* ‘in what’, *ḫ-mi-ḫ* ‘what for’, *s-mi-s* ‘with what’, *k-mi-k* ‘with whom’, etc. Note that in the Ikherruden dialect, the preposition appears on both sides of the element *mi*. In Wersan dialect, by contrast, preposition appears after *mi*, e.g. *mi-ḏeg* ‘in what’, *mi-ḫ* ‘what for’, *mi-kkeḏ* ‘with whom’, etc.

Arabic influence on the Berber lexicon is ubiquitous. Most Berber languages have borrowed a large number of Arabic lexemes. Many of the borrowed lexemes are part of the "basic lexicon". When comparing lexical borrowing in Berber, there is a difference between the varieties. Ghadames is less lexically influenced by Arabic than most other varieties, that can be characterized as "high borrowers" (whether compared within Berber or beyond). In the Leipzig World Loanword Database (Haspelmath & Tadmor 2009b), which provides a comparison of borrowing in a ca. 1500-word database of over forty languages, Tarifiyt takes a second place with over 50% of borrowings. Among "relatively bigger borrowers", Senhaja, Ghomara, and Siwa stand out with a high percentage of borrowings, which makes them "universally high borrowers". Senhaja and Ghomara have an unusually high percentage of borrowing in the "basic lexicon" when compared to other Berber varieties. Borrowings are found in all word classes and semantic domains.

Some word classes consist almost entirely of Arabic lexemes. Thus, in Senhaja, as in many other Berber varieties, numerals other than 'one' are represented by the Arabic borrowings. They have replaced the original Berber numerals. Arabic adjectives and participles do not have a direct counterpart in Berber, so this is an example of a *categorical transfer*. Borrowing of Arabic adjectives and participles on a large scale is only found in a few Berber varieties, among which are Senhaja, Ghomara, Zwara, and Siwa (Souag 2010: 146-147).

In parts of Senhaja (Ketama, Taghzut, Hmed, Zerqet), as well as in Ghomara, ancient stative verbs developed into "Berber adjectives". The difference between Senhaja and Ghomara is that stative conjugation is preserved in parts of Senhaja (e.g. in Zerqet) and that in parts of Senhaja (Taghzut, Seddat, Zerqet), ancient stative verbs can receive regular verbal marking. It is tempting to suggest that the development of Berber adjectives was prompted by the large number of borrowed Arabic adjectives. However, it could have also been an internal development. It is important to note than in both Senhaja and Ghomara, Arabic adjectives are more numerous than the Berber ones. Could the decline of the Berber adjectives be due to the introduction of Arabic adjectives? Or, rather, did the rare stative conjugation and the Berber adjectives decline on their own?

Native Berber adjectives and Arabic borrowed adjectives have the same syntactic function. However, they differ in their morphological marking. Arabic adjectives (as well as participles) are borrowed along with their derived forms (FS and PL). This leads to a situation where native Berber adjectives have Berber morphology (take Berber affixes to mark FS and PL), while borrowed Arabic adjectives have Arabic morphology (take Arabic markers). This situation can be characterized as *Parallel System Borrowing* (PSB: Kossmann 2013a: 420; Kossmann 2010a). In the PSB,

morphological material is introduced with (and remains restricted to) borrowed lexemes. While PSB in the nominal system is common in Northern Berber, PSB in the adjectival system is rare.[109] Ghomara goes further than Senhaja in that it has PSB also in the verbal system. In Senhaja, whenever an Arabic verb is borrowed, it is integrated into the Berber verbal morphology.

Borrowing of Arabic active and passive participles did not oust the corresponding native Berber verbs. This results in many suppletive paradigms, where a Berber verb corresponds to an Arabic participle, and often also an Arabic verbal noun, causative, or passive. In a few examples, Arabic morphological markers and vocalic patterns have been applied to the native Berber roots, e.g. to derive a participle (cf. Section 7.3.2), or stem II causative (Section 3.3.6).

Applying Arabic morphology to the native Berber roots is very rare. This can be explained by the fact that Arabic often uses apophony, which is not as easily borrowed as affixes. In the case of the passive participle, borrowing of Arabic morphology was facilitated by the fact that it is largely carried out by means of affixes (passive participle prefix *m-*, FS suffix *-a*, PL suffix *-in*), although the vocalic pattern also plays a role. Arabic apophony is more difficult to apply to the native Berber lexemes. Even so, there are some exceptions. Thus, Ghomara has borrowed Arabic apophonic patterns to derive diminutives, e.g. *aɛebbiz* 'calf' – *aɛbibez* 'little calf' (Mourigh 2015: 111-123). The words *aɛbibez* and *aɛbuz* are also found in Hmed variety of Senhaja (where *aɛbuz* refers to a young calf, and *aɛbibez* is a general word for 'calf'. This derivation is not very productive in Senhaja. Nevertheless, some internal diminutives have been found (especially in the Hmed variety).

Another example where Ghomara takes over Arabic apophonic patterns with native inflection involves verbs borrowed from Arabic. In Berber, normally, once the Arabic basic form is chosen and borrowed, the native Berber apophonic schemes are applied to it. Ghomara, however, copies Arabic apophony with cVc borrowed verbs (even when they have Berber inflection). The difference between the Arabic perfect (*a*) and imperfect (*u, i,* or *a*) is reflected in Ghomara as the difference between Perfective and Aorist. Arabic vocalization of the imperfect is found in the Ghomara aorist forms. Thus, originally Arabic apophony is used to differentiate between the Berber Aorist and Perfective stems. This has not been found in Senhaja.

While Senhaja behaves like Ghomara in borrowing a large number of Arabic verbs, there are also some differences. In Ghomara, Arabic verbs can appear with the Arabic imperfective marker *ka*, and take Arabic pronominal clitics. This does not

[109] By 'Northern Berber', we mean Moroccan and Algerian Berber varieties (excluding Tuareg), following Kossmann 2012a: 19. Libyan and Egyptian Berber are referred to as 'Eastern Berber'. This is not a historical classification.

happen in Senhaja. Whenever borrowed, Arabic verbs are conjugated as native Berber verbs, and take Berber pronominal clitics. On the other hand, in Senhaja, as in Ghomara, Arabic borrowed verbs usually take the passive markers (*t(t)-* and *n(n)-* rather than the passive markers *ttya-/ṭṭuya-/ttwa-*. However, it must be noted that the prefix *t(t)-* is found in many Berber varieties as a native passive marker (Kossmann 2002a), while the prefix *n-* or *m-* is used in native middle derivation. In Ghomara, where the markers *t(t)-* and *n-* are combined only with Arabic borrowed verbs, the passive markers themselves must be considered a borrowing. Arabic borrowed verbs in Ghomara can only appear with the Arabic passive prefixes (in fact, the native Berber passive prefix is not preserved in Ghomara), and the native Berber verbs do not appear with these prefixes.

In Senhaja, the situation is different from Ghomara. On the one hand, we also find Arabic borrowed verbs with prefixes *t(t)-* and *n(n)-*, e.g. (Ketama) *t-ṣeṛṛeḍ* 'sent'~ *t-ṣeyfeḍ* ('id.'), *nn-ebna* 'built'. On the other hand, there are examples of these same prefixes *t(t)-* and *n(n)-* with native Berber verbs, e.g. Hmed *tt-esḇa* 'drunk', *tt-eḵrez* 'plowed', Ketama *nn-eḵrez* 'plowed'. It is therefore impossible to state with certainty if the elements *t(t)-* and *n(n)-* in such examples are Arabic or Berber in origin. Most likely, we deal here with multiple etymologies (conflation), i.e. the occurrence of similar passive prefixes in both Arabic and Berber made the identification and transfer easier, and made the use of such elements more widespread. One must also note that Arabic borrowed verbs may accept native Berber passive prefix in Senhaja, e.g. Zerqet *ttwa-bna* 'built' (alongside *tt-ebna*).

The native verb *ekk* 'to give' has the passive form *ttwaɛṭa* in Zerqet (Berber native prefix *ttwa-* combined with the Arabic form of the verb 'to give', which does not occur on its own in Senhaja). Many verbs (such as the verb *ekk* 'to give') do not accept any passive prefix. In this case, often, suppletion takes place. An underived Berber verb may correspond to a borrowed Arabic passive form, or to an Arabic passive participle, e.g. *wweṭ* 'beat' > *nḍṛeb* 'beaten'.[110] Finally, some verbs may lack both a derived passive form and a suppletive Arabic passive (e.g. the verb *neġ* 'to kill' in the Zerqet variety).

It is obvious from the above that Arabic has exercised a big influence on Senhaja lexicon and morphology. Besides lexicon and morphology, Arabic influence is also found in syntax, e.g. coordination, subordination, interrogation, and negation. Thus, the Arabic coordinator *w/u* is borrowed in Senhaja. This coordinator can be used as a clause-linking element (English 'and'). It often marks a logical relationship between clauses (English 'so'). Many borrowed Arabic conjunctions introduce subordinated clauses. In this case, Arabic subordinators replaced earlier Berber

[110] The Berber-derived passive form *ttwa-wweṭ* is used in Zerqet in a specific meaning 'demon-possessed'.

subordinators. In Senhaja, several Berber question words have been replaced by Arabic loans, as well.

Regarding negation, it must be noted that Senhaja generally does not preserve the negative stems.[111] As Senhaja usually employs the native Berber preverbal negator *u*, the disappearance of the negative stems cannot be linked to the borrowing of the preverbal negator. In Ghomara and in Siwa, it might have been an internal simplification, as well. In Senhaja, as in many other Berber varieties, the original preverbal negator has been supplemented by a postverbal negator. Lucas (2009) argues that this happened due to the influence of dialectal Arabic. In some varieties, the postverbal negator is native. In others, including Senhaja, the postverbal negator is borrowed from Arabic.

Senhaja as a whole has not reached stage III of the Jespersen's cycle, where preverbal negator is also omitted, although preverbal negator can be absent in specific contexts (especially in the presence of other preverbal particles, such as future/irrealis, and in combination with 3MS verb forms). This happens especially in parts of Ketama (Lmekhzen, Talghunt). However, the preverbal negator is more often present than not, especially in Eastern Senhaja (Zerqet). In most contexts, the preverbal negator is Berber in origin (*u, ur, uḏ*). In specific varieties and in specific contexts, the preverbal negator can be *ma* or *(u)la* (rather than the general *u*). While there is undoubtedly a similarity with the Arabic preverbal negators *ma* and *la*, there is also a complication, as these negators are not general in Senhaja. Instead, they are limited to specific contexts. Thus, *ma* usually appears in the negation of Aorist (e.g. in Taghzut and Hmed), while *(u)la* appears in the negation of Imperfective forms (in the same varieties). We can thus speak of "specialized" negation markers that are used alongside the "general" negator *u*. This specialization is not found in Arabic for the negation markers in question. It is thus logical to suggest that the use of these negators in specific contexts has arisen due to the identification of these markers with homophonous elements that exist in Senhaja. For the "future" negator *ma*, there could have been an identification with the future marker *maša* (itself likely a borrowing from Arabic, based on the Arabic participle *maši* 'going' followed by the Berber irrealis particle *a*). The future marker is often reduced to *ša*, leaving the *ma-* part out. The initial *ma-* could have been identified with the Arabic negator *ma*. In future negated forms starting with *maša*, it is impossible to tell if the preverbal negator is absent, or if the element *ma* fulfills a dual role: negation + future marker. As there also exist forms starting with *ma maša*, it is clear that *ma* is not always simply a part of the future

[111] This feature is shared by Senhaja with Ghomara, as well as with Siwa. Negative stems are encountered in parts of Zerqet and Mezduy. Cf. Chapter 4.

marker.[112] On the whole, the element *ma* is still inviting more research, as to its role and meaning. It is probably linked to the aspect and modality, the probability of something to take place.

As regards the imperfective negator *la*, this could have been identified with the Berber imperfective marker *la* (based on the Berber verb 'to be') that is used in some Berber varieties (e.g. Central Moroccan Tamazight, Gourara, Mzab). The problem is that the element *la* is not found in imperfective positive forms in any Senhaja variety. It is impossible to state with certainty if the imperfective marker *la* was ever used consistently in Senhaja. However, it is clear that the negator *la* fulfills a dual role (just as its future counterpart *ma*), as it marks both the negation and the imperfective aspect. Both negators, *ma* and *la*, can be substituted by the general negator *u*, or may also appear in combination with it (*u* + *ma* for future negation, and *u* + *la* for imperfective negation). Both can appear in prohibitives. However, the choice of the preverbal negator will have influence on the following verb form. The negator *ma* used in prohibitives is followed by the Aorist verb stem with the usual subject markers. The negator *la*, by contrast, is followed by the Imperfective verb stem with a special (imperative) marking. Furthermore, the choice of the preverbal negator has influence on the clitic fronting. While *ma* attracts clitics to the preverbal position, *la* does not obligatorily cause clitic fronting, and clitics can be left postposed (cf. Section 12.5).

1.10. Methodology and Sources

The present study is based on fieldwork data collected between 2013 and 2021 by the author from 35 different Senhaja villages across seven tribes (Ketama, Seddat, Taghzut, Hmed, Bunsar, Zerqet, and Mezduy). See the map in Section 1.3 and Appendix 2 for the geographical coordinates of the villages. In the period between 2013 and 2019, in total, eighteen months were spent in the field (six fieldwork trips of approximately three months each). In 2020-2021, in the times of the coronavirus pandemic, fieldwork was conducted remotely, and the data were acquired by working online with multiple (around thirty, with ten being most active) Senhaja speakers (cf. Gutova 2021a; Lesage 2021). All in all, more than 300 speakers speaking different Senhaja varieties and dialects have provided data for this study. On the challenges of writing a polylectal grammar, cf. Gutova 2021b.[113] While it is impossible to name all

[112] Cf. Lucas 2007 on Jespersen's cycle in Arabic and Berber, and his point about the dropping of NEG1 before bilabials.

[113] On polylectal grammars, cf. also Weinreich 1954; Berrendonner, Le Guern & Puech 1983, Bickerton 1973; Mühlhäusler 1992; Ameka, Dench & Evans 2006. For some examples, see Diller 1993; Diller 2006; and Evans 2003.

my language consultants here, the names of the major consultants for each tribe are provided in Section 1.5.

While multiple (more than ten) speakers were usually consulted from each village, some sub-dialects are necessarily more represented in our study than others. Thus, within Ketama, most of the data originate from the villages Beni Aisi and Beni Hmed. In Taghzut, most data come from Lqela. However, some stories were recorded with a speaker from Beni Khlef. In Seddat, most data originate from Azila and Talarwak; some grammatical features (specifically, verb conjugation) were elicited with a few speakers from Tidwin. In Bunsar, most data come from Luta, Amakdan and Tamadit. In Hmed, almost all elicitations were carried out in Tafurnut, while natural data were recorded in Imugzan. In Zerqet, most elicited data originate from Aghennuy and Ikherruden, while recordings were made with the speakers from Wersan and Bunjel. For the Mezduy variety, most speakers (coming from various villages) were consulted in Targuist. It was chosen not to focus on this variety in the present thesis, because Mezduy is a border variety that shows most resemblances with (and is probably most influenced by) Tarifiyt.

Fieldwork was conducted both with men and women from different age groups, varying from children who are just starting to talk (and who are often addressed to using the so-called “baby talk” terms) to the elderly population (about seventy years old). The youngest speaker who has provided a text (a joke in Ketama Berber) was eight years old at the time of the recording, while the oldest one was sixty-five. Some texts (especially short jokes and shorter stories about life) were provided by young speakers (between twelve and thirty years old), while most fairy tales were told by the older speakers, as young speakers are often not such good story-tellers. Thus, the text corpus contains texts provided both by the young and the old speakers, and both by men and women. However, most grammar elicitation was done with younger speakers (between twelve and thirty years old, men and women). Transcriptions and translations of the stories were often done with younger speakers, as well (usually with children of the ones who have provided the stories).

Data on Senhaja Berber were collected using two methods: 1) elicitation and 2) recording of spontaneous speech, dialogues, and texts of various genres. It was carefully verified that the data collected through elicitation correspond to the data collected through recordings of spontaneous speech and texts, and vice versa. Elicitation was necessary due to the nature of this work (focus on verbal morphology), as it is difficult to gather complete paradigms based on texts alone.

Elicitation was mostly carried out using Moroccan Arabic as language of communication, although a few students in Martil and Targuist are familiar with English and French to some extent. Lexical data stem both from elicitation and from texts. These data were stored using *Flex* (FieldWorks Language Explorer). In 2021, the lexical database counted ca. 6,000 entries covering seven Senhaja varieties. This number includes various word forms such as plurals of nouns and various derived forms of the verbs.

While a lot of hours of speech were recorded, not all of the texts were transcribed and translated. Thirty texts were selected to be part of the (oral) corpus. Among these, twenty were transcribed and translated with the help of the speakers. Among these, ten were glossed and annotated. The texts vary in duration from very short ones (1 minute) to long stories (ca. 30 minutes). Overall, the entire corpus amounts to 2,5 hours of recorded speech. The recordings, transcriptions, and translations are archived and will be made available wherever appropriate (without violating consultants' privacy) to other scholars for purposes of further study and verification, as well as to the community interested in their language and heritage.

This study also provides comparisons of Senhaja to other Berber varieties, wherever relevant. When the source is not explicitly mentioned, data come from personal notes by the author. Most examples from Ghomara stem from Mourigh 2015. Some additional comments were provided by Abdelhalim Elmoudden, a Ghomara speaker from Beni Mansour, Isouka village. His dialect differs from the one described by Mourigh. Most examples from Tarifiyt are supplied from Lafkioui 2007a, Kossmann 2000a for Eastern Tarifiyt, and Mourigh & Kossmann *fc.* for Nador Tarifiyt. My major Tarifiyt Berber informants are Idir Andich (Tuzin/Midar) and Boutaina (Waryaghel/Al Hoceima). Warayn examples stem from personal notes by the author. Examples from Kabyle originate from Dallet (1982), Naït-Zerrad (2001a), Guerrab (2014), or from personal notes by the author. Major Kabyle Berber informants are Sofiane Smaïl (At Zmenzer) and Cherif Dahmouh (Chorfa/Azazga). Data from Tasahlit ("Far Eastern Kabyle") come from Berkaï 2014 and from Massinissa Garaoun (a speaker of Buyusef variety, Tamridjet, who also has knowledge of the Laalam variety, Erraguène); cf. also Garaoun 2019. Data from Gourara Berber come from Tahar Abbou. Data from other Berber varieties originate from literature.

Previous studies

Literature on Senhaja Berber is very limited. First of all, there is a descriptive grammar by Renisio (*Étude sur les dialectes berbères du Rif et des Senhaja de Sraïr*, 1932), which

only partly covers Senhaja.[114] Second, there is a Senhaja-Spanish dictionary by Ibáñez: *Diccionario español-senhayi (dialecto bereber de Senhaya de Serair)*, 1959. This work is based on Eastern Senhaja varieties, Zerqet and Hmed. Finally, Senhaja is an integral part of Lafkioui 2007a: *Atlas linguistique des variétés berbères du Rif*. This atlas is very rich, and it is extremely useful for the study of linguistic variation in northern Morocco. Unlike its predecessors, the *Atlas* includes all Senhaja varieties, with 17 survey points in the Senhaja de Srayer region. The language data found in Lafkioui 2007a do not always correspond to the data collected by the present author.[115]

The above three studies sum up all the literature on Senhaja Berber that is based on material collected by the authors themselves. In addition, there is a study by Kossmann (2017a) devoted to the place of Senhaja in Berber dialectology (mostly based on data found in Lafkioui 2007a). This study demonstrates that Senhaja Berber forms part of a different linguistic group than Tarifiyt/Zenati. See Section 1.10 on Ketama Berber vs. Tarifiyt/Zenati based on the features described in Kossmann 2017a.

1.11. The Present Study

The Subject and the Plan

This thesis is devoted to the study of phonology, morphology, and morphosyntax of Senhaja Berber varieties. It is a step forward to a complete, fieldwork-based grammar of Senhaja. We adopt a polylectal approach, focusing on the differences and the common features between the studied varieties (cf. the previous section on the notion of a polylectal, or multi-dialectal grammar). Three varieties – Ketama (West), Hmed (Center), and Zerqet (East) – are focused on to cover Senhaja most fully and accurately. The thesis covers the major domains of the language, such as phonology, morphology, and morphosyntax, with a focus on the verbal morphology, the study of the verbal complex, and the movement of the verbal clitics. This thesis does not contain a full description of syntax, but some elements of syntax that are relevant for the present study (in particular, for the clitic movement) are discussed in the final chapters. The essence of this thesis is above all morphological. While it has "Phonology, morphology and morphosyntax" in its title, it is not always possible to distinguish between the three, as everything is related and the three domains influence each other. This interaction between the levels also poses some problems for the clear

[114] Renisio's data originate from "quelques-uns des habitants de ces tribus faits prisonniers en 1925, ou venus demeurer à Fez depuis quelques années" (p. xii). For the grammatical and lexical elicitation, the tribal affiliation of the informants is not specified. The texts were provided by Bshir, Hmed, Bunsar, and Taghzut speakers.

[115] See https://academia.li/gutova/ketama-linguistic-questionnaire for some differences.

differentiations. Due to this, sometimes, it was not immediately clear in which part to discuss a particular problem. For example, in the last chapter, we discuss phonology, but also morphology and (morpho)syntax.

The thesis starts with a description of phonology (Chapter 2), which is necessary for the understanding of the verbal morphology and everything that follows. The subsequent chapters (Chapters 3 to 11) constitute the Morphology part (cf. below). Because the verbal morphology forms the core of this thesis, three chapters are dedicated to it: Chapter 3 discusses the major characteristics of the verb, the verb derivation, and subject marking; Chapter 4 discusses the formation of the verbal stems that express the mood, aspect, and also negation (MA(N)) in parts of Senhaja; finally, Chapter 5 is devoted to the verbal clitics and particles, markers and auxiliaries of the past, future, and the relevance of the utterance for the present. Following, we move to the description of other major word classes/syntactic categories (nouns in Chapter 6, adjectives and participles in Chapter 7, pronouns in Chapter 8, prepositions in Chapter 9, numerals in Chapter 10, and adverbs in Chapter 11). Conjunctions and question words are discussed in Chapter 12 in relation to the clitic movement.

In Senhaja, there are two types of clitics. Some are only prosodically (phonologically) dependent, but do not undergo movement. They are referred to as *prosodic clitics* in this thesis. These are, for example, the deictic clitics found with the noun (Section 6.6). Others, those found with the verbs, are *syntactic clitics*. In addition to being prosodically dependent, they have another important characteristic – namely, they undergo movement under certain conditions.[116] In unmarked contexts, verbal clitics follow the verb, while in specific (marked) contexts, such as irrealis, negation, clitics are found before the verb. Such clitics are discussed in Chapter 5.3 as part of the verb complex, while their movement is discussed in the final part of the thesis devoted to (morpho)syntax (Chapters 12 and 13). In Section 12.2, we come back to the definition of (syntactic) clitics and the theoretical discussions. Section 12.3 discusses a verbal clitic chain, and Section 12.4 discusses contexts under which clitic fronting takes place. In parts of Senhaja, citic movement is divergent from the usual model, where clitics are fronted together in a clitic chain. Different varieties of Senhaja follow different rules for the clitic movement. Section 12.5 discusses clitic fronting in Taghzut. In this variety, clitic fronting depends on the mood/aspect of the verb. Rules of clitic fronting in Ketama differ from the rest of Senhaja and most other Berber varieties, and are discussed separately in Chapter 13. In this variety, deviations from the usual model are not related to the verb mood/aspect, as in Taghzut, but

[116] On the difference between the prosodic and syntactic clitics, cf. El Hankari 2021: 199. Selkirk 1996 refers to prosodic clitics as 'affixal clitics'.

rather to the nature of the clitics. Here, when the verb contains two pronominal clitics, typically, only the IO is fronted, while the DO is left postposed, resulting in a partial clitic fronting. When the verb form contains three clitics (IO, DO, and ventive), the most typical scenario is the partial clitic fronting combined with the ventive repetition: one ventive clitic is fronted and follows the IO, while the second ventive is left postposed and follows the DO clitic. The knowledge of the clitic movement is needed for the understanding of the morphophonology of the verb complex, which is the final chapter of the thesis.

While a lot of data for this thesis were elicited and it presents a lot of paradigms, it was always carefully verified that the data correspond to the actual (natural) speech of our informants. For this purpose, a lot of texts were recorded and analyzed by the author. Unfortunately, due to the time constraints, it was impossible to properly gloss and translate all the texts. Nevertheless, some texts (glossed and translated) are provided in Appendix 1. In particular, the first text recorded in Ketama ('A joke about a mouse'), already contains some examples of partial clitic fronting in this variety. The Zerqet Berber text about El Mejdub is provided for its historical and cultural interest, as the story describes the legendary origin of the Senhaja language and tries to explain its diversity. More texts (some with, some without the glosses) in different Senhaja Berber varieties (including Taghzut, Seddat, Hmed, Bunsar) can be consulted at https://academia.li/gutova/senhaja-texts. This file also contains the links to the audio recordings (including the texts presented in Appendix 1).

In preparation of this thesis, a lot of lexical data were collected. While the lexicon is not presented here as part of the thesis, a Senhaja Berber dictionary is currently being prepared by the author, in collaboration with Jonathan Byler.[117]

While this thesis is devoted to Senhaja, wherever relevant, comparisons are provided with other Berber varieties. As Senhaja Berber is geographically close to Ghomara and Tarifiyt, it is most often compared and contrasted with these languages. Because of the important of the Arabic influence on Senhaja, a large part is devoted to it in the Introduction part (Section 1.9) and throughout the thesis.

This thesis presents a synchronic analysis of the language as it is currently spoken. Wherever possible, some historical notes are made about possible language changes. As Berber is only rarely approached from a historical linguistics perspective, few historical observations (going deep in time) are made here. However, some observations can be made when comparing different Senhaja Berber varieties, or Senhaja with other Berber languages. Such historical observations cannot be

[117] The dictionary can be consulted by request at https://senhaja.webonary.org. An extract can be consulted at https://academia.li/gutova/senhaja-wordlist.

pinpointed exactly to some specific time. Some of the proposed historical changes are more certain than others. This work is not exhaustive due to time and space constraints. It is hoped that this thesis provides some answers to some questions, while some questions are necessarily left unanswered.

Morphology: Roots and Schemes

The following word classes (lexical categories) are common for Berber languages: verbs, nouns, pronouns, adverbs, prepositions, and numerals. Different from many other Berber languages, in Senhaja, adjectives and participles are distinct morphological classes. Most of the adjectives and participles are borrowed from Arabic, but some are formed within Senhaja (Chapter 7).

In Senhaja, as in Berber in general (and as in Semitic languages), one finds roots which are not specified for the word class. Word class is specified by means of derivation. However, one does not necessarily find both a verb and a noun derived from the same root. Some roots are found only in verbs, whereas others only in nouns.[118]

The root can be predominantly consonantal (i.e. composed of consonants, or radicals), although there are also roots involving vowels or semivowels.[119] There are verbs that differ only in a vowel, e.g. (pan-Snh.) *asi* 'to lift' vs. *as* 'to come'. In forming of the aspectual stems, one may find a vowel scheme applied to the root, e.g. some Aorist and Perfective pairs, such as (pan-Snh.) *asi* > Perfective *usi* 'to lift'. Sometimes, consonant lengthening (gemination) takes place, e.g. in the formation of the Imperfective (e.g. Ketama *k̲rez* > Imperfective *k̲errez* 'to plow'). However, consonant gemination can already be present in the citation form.

In Berber, one frequently finds the same opposition expressed by different means. Nevertheless, certain patterns emerge if other criteria (e.g. the type of the verb root) are considered. Cf. Chapter 4 on formation of the MA(N) stems. Word formation involving vowel schemes is akin to apophony, where sounds (often vowels) alternate in a word to encode grammatical information.[120]

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[118] It is common in Berber that verbs have a nominal counterpart, known as the verbal noun (Galand 2002). In Senhaja (especially in Western Senhaja), verbal nouns are often borrowed from Arabic and can be suppletive to the native Berber verbs. See Section 6.5.4.

[119] See Galand 2002: 87-99 on Berber consonantal roots and "vowel schemes", while Cohen (1993: 170) proposes to include vowels in the root. Galand (2010: 85) addresses this problem. Cf. also Kossmann 1997: 130 and Kossmann 2012a: 35.

[120] This phenomenon is also referred to as *ablaut*; *internal modification* or *inflection*; *stem mutation, alternation*, or *modification*; *vowel mutation, alternation*, or *gradation*.

2. Phonology

This chapter discusses Senhaja Berber phonology. The phonologies of Senhaja and (the local) Arabic are nearly identical. Nevertheless, there are some differences within Senhaja (most notably, in the existence of labialized velars, and the degree of spirantization). Consonants are treated first (Section 2.1), followed by the vowels (Section 2.2). The section on vowels treats three plain (peripheral) vowels (*a, i, u*) and the central vowel schwa (written here as *e*). Semivowels /y/ and /w/ (and their relation with the vowels /i/ and /u/) are discussed in Section 2.3. Section 2.4 is dedicated to assimilations and vocalic sandhi. Northern Berber languages are usually said to have no lexical stress. The "rules of stress" in Berber often refer to sentence intonation (cf. Chaker 1995: 97-116). The intonation falls outside the scope of the present study.[121]

2.1. Consonants

This section describes the consonantal inventory of Senhaja in general. The following oppositions exist in the consonantal system:

1) voice: voiced vs. voiceless consonants;
2) length: short vs. long consonants;
3) pharyngealization: non-pharyngealized vs. pharyngealized consonants;
4) spirantization: stops vs. fricatives (spirantized consonants);
5) assibilation: *t* vs. *ṭ* (only in parts of Senhaja);
6) labialization (absent in Ketama and Taghzut).

2.1.1. Consonant Inventory

As other Berber languages, Senhaja Berber knows the opposition of voice, length, and pharyngealization (cf. Kossmann 2012: 6, Galand 2010: 49-59). Furthermore, as many other Berber languages, Senhaja underwent a process of spirantization. Spirantization reached different degrees in different Senhaja varieties (see Section 2.1.4). An important point of variation is found in labiovelarization: labialized velars are found in most Senhaja varieties, but are absent in Ketama and Taghzut (Section 2.1.6). The two following charts present the consonant inventory of Senhaja as a whole (i.e. only those consonants that are found across Senhaja are listed). Simple and long consonants

[121] For the study of intonation in Berber, see e.g. Lafkioui 2002b, 2006a, 2009e, 2011c, 2012a; Mettouchi, Smaïl & Louali 2004; Mettouchi 2009a.

are listed separately. Phonemes that are present in some Senhaja varieties (but lack in Ketama, for example) are presented in Chart 3. Chart 3 combines short and long consonants. Parentheses indicate rare consonants (e.g. *p, ḡ, ž̦*). Some plosive and fricative pairs (*ḍ* and *d̠*, *d* and *d̲*, *t* and *t̲*, *k* and *k̲*) are often in free variation, but not always (see Section 2.1.4). Long fricatives are rare, and are not included in Chart 2. In these charts, the usual transcription symbols are used. IPA equivalents are given below.[122]

Chart 1. Short consonants common to Senhaja

	Lab	**Intrd**	**Alv**	**Post-alv**	**Pal**	**Vel**	**Uvu**	**Phar**	**Lar**
vl. stop	(p)		t			k	q		(’)
vd. stop	b		d			g			
phr. vl. stop			ṭ						
phr. vd. stop			(ḍ)						
vl. fricative	f	t̲	s	š		k̲	ḫ	ḥ	
vd. fricative		d̲	z	ž		(ḡ)	ġ	ɛ	
phr. vl. fric.			ṣ						
phr. vd. fric.		d̲	ẓ	(ž̦)					
vl. affricate				č					
vd. affricate				ǧ					
approx.	w				y				h
nasal	m		n						
tap			r						
phr. tap			ṛ						
lateral			l						
phr. lateral			(ḷ)						

[122] The following abbreviations are used in the charts: fric. = fricative, lab = labial, lbd = labialized, intrd = interdental, alv = alveolar, post-alv = post-alveolar, pal = palatal, vel = velar, uvu = uvular, phar = pharyngeal, lar = laryngeal; vd. = voiced, vl. = voiceless, fric. = fricative, phr. = pharyngealized, approx. = approximant.

Chart 2. Long consonants common to Senhaja

	Lab	**Intrd**	**Alv**	**Post-alv**	**Pal**	**Vel**	**Uvu**	**Phar**	**Lar**
vl. stop	(pp)		tt			kk	qq		
vd. stop	bb		dd			gg			
phr. vl. stop			ṭṭ						
phr. vd. stop			(ḍḍ)						
vl. fricative	ff		ss	šš		(k̲k̲)	ḫḫ	ḥḥ	
vd. fricative			zz	žž			(ġġ)	ɛɛ	
phr. vl. fric.			ṣṣ						
phr. vd. fric.		d̲d̲	ẓẓ	(ẓ̌ẓ̌)					
approx.	ww				yy				hh
vl. affricate				čč					
vd. affricate				ǧǧ					
nasal	mm		nn						
trill			rr						
phr. tap			ṛṛ						
lateral			ll						
phr. lateral			(l̩l̩)						

Chart 3. Short and long consonants that are found dialectally

	Lab	Interd	Post-alv	Vel	Vel Lbd	Uvu	Uvu Lbd
vl. stop	(pp)				k(k)^{w}		
vd. stop					g(g)^{w}		
vl. fricative					k̲(k̲)^{w}		
vd. fricative	b̲			ḡ(ḡ)		(ġġ)	ġ^{w}
vl. affricate		tts	č(č)				
vd. affricate		ddz	ǧ(ǧ)				

The following tables present the phonemes found in Ketama with their IPA equivalents and examples. Simple and long consonants are listed separately for Ketama, and together for the remaining varieties.

Ketama short consonants with IPA symbols and examples

Letter	IPA	Examples and Notes
p	p	*lpinwar* ‘bathrobe’, *lpaṭ̣run* ‘boss’
b	b	*baba* ‘father’, *abaw* ‘broad bean’, *abḫiḫ* ‘goat kid’, *abuṭ* ‘navel’
t	t	*tebbaz* ‘be fat’, *iẓra-t* ‘he saw her’
ṯ	θ	*ṯerga* ‘canal’, *ṯayya* ‘(water) spring’, *aṯar* ‘wild pigeon’, *abkiwṯ* ‘worm’
d	d	*daba* ‘now’, *agenduz* ‘bull’, *amdakkuy* ‘friend, *zdi* ‘open’, *awi-d* ‘bring’
ḏ	ð	*ḏi* ‘here’, *aḏfi* ‘snow’, *afuḏ* ‘knee’
ṭ	tˤ	*ṭwil* ‘long’, *lbaṭaṭa* ‘potato’, *lḫiṭ* ‘thread’, *iṣmeṭ* ‘cold’
ḍ	ðˤ	*aḍi* ‘grape’, *aḏuġd* ‘finger’, *ẓẓeḏ* ‘to grind’, *ḵṣuḏ* ‘to be afraid’
ḍ∼ḏ	dˤ∼ðˤ	*lḫuḍra* ∼ *lḫuḏra* ‘vegetables’
k	k	*ka* (question marker/‘if’), *abkiwṯ* ‘worm’, *abezzik* ‘lamb’
ḵ	ç	*ḵa* ‘how’, *ḵemmi* ‘you (FS)’, *aḵay* ‘earth’, *abaḵur* ‘fig’
g	g	*gma* ‘brother’, *agelzim* ‘pickaxe’, *agris* ‘ice’, *afrag* ‘courtyard’
ḡ	ɟ	*ḡma* (∼*gma*) ‘brother’, *iḡa* (∼*iga*) ‘he did’.
q	q	*qbel* ‘before’, *aqezzun* ‘dog’, *fṛaq* ‘separate’
h	ɦ	*hen* ‘say!’, *awhar* ‘fox’, *aherḏan* ‘dog’, *ntaha* ‘she’, *krah* ‘to hate’
ḥ	ħ	*ḥemmi* ‘to love’, *aḥmam* ‘dove’, *ameḥžuṛ* ‘orphan’, *arwaḥ* ‘come!’
ḫ	x	*ḫḏem* ‘to work’, *aḫčiw* ‘boy’, *afruḫ* ‘bird’, *abḫiḫ* ‘goat kid’
ġ	ɣ	*ġer* ‘to study’, *aġyuy* ‘donkey’, *aġrum* ‘bread’, *nuġ* ‘kill (SG)!’
’	ʔ	*lɛa’ila* ‘family’
ɛ	ʕ	*ɛqi* ‘to remember’, *aɛeddist* ‘belly’, *arqaɛt* ‘field’, *bɛid* ‘far’, *ẓraɛ* ‘to sow’
f	f	*flayyu* ‘menthe’, *feṛḥan* ‘happy’, *aḏfi* ‘snow’, *asif* ‘river’, *af* ‘on’
s	s	*sell* ‘to hear’, *serkes* ‘to lie’, *imsi* ‘fire’, *aserdun* ‘mule’, *agris* ‘ice’
ṣ	sˤ	*ṣafi* ‘enough’, *ḵṣuḏ* ‘to be afraid’, *abṣelṯ* ‘onion’, *ṯṯeṣ* ‘to sleep’
z	z	*zdi* ‘to open’, *azarṯ* ‘fig’, *iġzer* ‘stream’, *izi* ‘fly’, *argaz* ‘man’, *agruz* ‘heel’
ẓ	zˤ	*ẓer* ‘to see’, *ẓun* ‘to divide’, *aẓaṛ* ‘root’, *ṛeẓ* ‘to break’
l	l	*leflus* ‘money’, *agelzim* ‘pickaxe’, *agfilṯ* ‘egg’, *qlil* ‘few’, *ṭwil* ‘long’
ḷ	lˤ	*ṣṣḷa* ‘prayer’, *lbaḷa* ‘spade’
m	m	*meqquṛ* ‘big’, *aman* ‘water’, *imi* ‘mouth’, *aferrum* ‘tooth’, *aġrum* ‘bread’
n	n	*nuġ* ‘kill!’, *inu* ‘my’, *insi* ‘hedgehog’, *aserdun* ‘mule’, *aššin* ‘cowshed’
r	r	*res* ‘to land’, *refraf* ‘coop’, *aḏrar* ‘mountain’, *abaḵur* ‘fig’, *aḵer* ‘to steal’
ṛ	rˤ	*ṛeẓ* ‘to break’, *feṛḥan* ‘happy’, *ameḥžuṛ* ‘orphan’, *lkaṛ* ‘bus’
š	ʃ	*škun* ‘who?’, *aġšišṯ* ‘churning vessel’, *ḵšem* ‘to enter’, *akbaš* ‘goat kid’
ž	ʒ	*žḏiḏ* ‘new’, *ažužt* ‘walnut tree’, *ɛžen* ‘to knead’, *žuž* ‘two’
č	t͡ʃ	*lčimineyya* ‘chimney’, *iḫunčar* ‘snot’, *aḫčiṯ* ‘girl’

ǧ	d͡ʒ	*ke̲ǧ* ‘you (MS)’
w	w	*wareg* ‘to dream’, *awi* ‘take’, *awhar* ‘fox’, *abaw* ‘bean’, *aḫčiw* ‘boy’
y	j	*yan* ‘one’, *yumba* ‘boys’, *zyu* ‘to slaughter’, *aġyuy* ‘donkey’, *ak̲ay* ‘earth’

The following table presents Ketama long consonants with IPA symbols and examples.

Ketama long consonants with IPA symbols and examples

Letter	**IPA**	**Examples and Notes**
pp	pː	*lkappa* ‘costume’ (*pp* is usually found in loans)
bb	bː	*Ṛebbi* ‘God’, *šebber* ‘to hold’, *ḫebbaɛ* ‘to hide’
tt	tː	*ttrimbu* ‘spinning top’, *aɛettuq* ‘rooster’, *netta* ‘he’
dd	dː	*dduḫḫan* ‘smoke’, *aɛeddist* ‘belly’, *aġeddu* ‘grapevine’
ṭṭ	tːˤ	*ṭṭeṣ* ‘to sleep’, *iġaṭṭin* ‘goats’, *ašṭṭeb* ‘branch’
ḍḍ~ḏ̣ḏ̣	dːˤ~ðːˤ	*ḍḍlam* ~ *ḏ̣ḏ̣lam* ‘darkness’, *iḥeḍḍi*~*iḥeḏ̣ḏ̣i* ‘he takes care’
kk	kː	*kker* ‘get up’, *nekki* ‘I’, *iskkerṭ* ‘garlic’, *amdakkuy* ‘friend’
k̲k̲	çː	*muk̲k̲a* ‘owl’, *ik̲k̲eššem* (~*ik̲eššem*~*ikeššem*) ‘he enter’s
gg	gː	*gges* ‘grill!’, *iggam* ‘yesterday’, *zugger* ‘look!’
qq	qː	*qqaren* ‘they say’, *meqquṛ* ‘big’
hh	ɦː	*ifehhem* ‘he explains’
ḥḥ	ħː	*abaḥḥat* ‘a kiss’, *deḥḥek* ‘to make laugh’
ḫḫ	xː	*aḫḫam* ‘house’, *aḫḫuy* ‘insect sp.’
ġġ	ɣː	*ngeġġa* (baby-talk) ‘cute’
ɛɛ	ʕː	*abaɛɛir* ‘bull’, *abaɛɛaš* ‘sheep’
ff	fː	*ffuġ* ‘Go out!’, *šše̲ffar* ‘thief’, *akffus* ‘cinders’
ss	sː	*ssend* ‘to churn’, *ssaġa* ‘I buy’, *k̲essen* ‘they herd’, *amssak̲i* ‘field type’
ṣṣ	sːˤ	*ṣṣbaḥ* ‘morning’, *ṣṣeṛwal* ‘trousers’, *ḫeṣṣ=ay* ‘I need’
zz	zː	*zzitun* ‘olives’, *amzzug* ‘ear’, *abezzik* ‘lamb’, *aqezzun* ‘dog’
ẓẓ	zːˤ	*ẓẓeḏ̣* ‘to grind’, *ẓẓu* ‘to plant’, *ġeẓẓen* ‘they gnawed’
ll	lː	*llil* ‘night’, *aželluṭ* ‘skin’, *afullus* ‘chicken’, *imelle̲k̲* ‘he marries’
l̲l̲	lːˤ	*(A)l̲l̲ah* ‘God’, *wel̲l̲ah* ‘by God’
mm	mː	*mmuṭ* ‘to die’, *agemmar* ‘horse’, *aḥemmir* ‘bird’, *yemma* ‘mother’
nn	nː	*nnuqiṭ* ‘fig tree’, *k̲unni* ‘you (PL)’, *genna* ‘sky’, *inna* ‘he said’
rr	rː	*rrṭ̲ila* ‘spider’, *aferrum* ‘tooth’, *ḥerraz* ‘dog’, *ik̲errez* ‘he plows’
ṛṛ	rːˤ	*ṛṛemḏ̣an* ‘Ramadan’, *abeṛṛani* ‘stranger’, *ažeṛṛin* ‘tail’, *ṣeṛṛeḏ̣* ‘to send’
šš	ʃː	*ššiġ* ‘I ate’, *wuššen* ‘jackal’, *aššin* ‘cowshed’

žž	ʒː	*žžmel* ‘camel’, *žželd(a)* ‘skin’
(ẓẓ)	ʒːˤ	*iẓẓa* ‘he is bad’
čč	t͡ʃː	*lečči̱n* ‘oranges’; baby-talk terms *ččuḥ* ‘sleep’ and *čaččaḥ* ‘sit’
ǧǧ	d͡ʒː	*k̲eǧǧi* ‘you (MS)’, *ṯaka̱ǧǧarṯ* ‘crow’, *ǧǧun* ‘to be full’, *weǧǧeḏ* ‘to prepare’
ww	wː	*wwiġ* ‘I took’, *awwerṯ* ‘door’, *gewwez* ‘pass by’, *irewwi* ‘he escapes’
yy	jː	*aseyyi* ‘groom’, *ayyum* ‘straw’, *ṯayya* ‘(water) spring’, *weyyi* ‘heart’

The following table lists consonants that are rare or absent in Ketama, but that are found in other Senhaja varieties.

Consonants that are rare in Senhaja with IPA symbols and examples

Letter	**IPA**	**Examples and Notes**
pp	pː	Zerqet *ṯuppa* ‘rat’, *čuppa* ‘pacifier’, *ššappu* ‘hat’
b̲	β	Taghzut *b̲nu* ‘to build’, *aḇaka̱ur* ‘fig’, *arḇa* ‘boy’, *aštеḇ* ‘branch’
ḡ	ɟ	Zerqet (Wersan) *aḡris* ‘ice’, *bḏeḡ* ‘to be wet’, *ṯaḡfilṯ* ‘egg’, *amḡuḏ* ‘cedar’
ḡḡ	ɟː	Zerqet *eḡḡ* ‘to do’, *iḡḡa* ‘he did’
ḥḥ	ħː	Zerqet *ḥḥfur* ‘he digs’, *iḥḥmul* ‘he fills’
ġġ	ɣː	Zerqet *iġġeḏ* ‘ashes’, *aġġul* ‘to become’, *iġġmus* ‘he submerges’
ṭ	t͡s	Hmed *nṭṭani* ‘she’, *iṭaka̱er* ‘he steals’, *ṯizerfeṭ* ‘path’, *iẓra-ṭ* ‘he saw her’
ṭṭ	t͡sː	Hmed *nṭṭani* ‘he’
č	t͡ʃ	Hmed *čuppa* ‘pacifier’, *čerri* ‘to tear’, *aḫenčir* ‘dirty (one)’
čč	t͡ʃː	Hmed/Zerqet *ččappu* ‘hat’, *ičča* ‘he ate’, *iḵečče̱m* ‘he enters’
ǧ	d͡ʒ	Hmed *nǧer* ‘to make furniture’, *ǧelǧel* ‘to break’, *lǧim* ‘pocket’
ǧǧ	d͡ʒː	Zerqet *ǧǧib* ‘pocket’, *aǧǧar* ‘neighbor’, *ǧǧuẓ* ‘to be hungry’
k̲(k̲)ʷ	ç(ː)ʷ	Seddat/Zerqet *ak̲ʷer* ‘to steal’ (dialectally *ak̲k̲ʷer*)
kʷ	kʷ	Hmed *kʷa* ‘if (counterfactual)’, Seddat *ṯikʷet* ‘worm’, PL *ṯikʷa*
kkʷ	kːʷ	Zerqet *aɛekkʷaz* ‘stick’, *ikkʷaṯ* ‘he beats’, *amddakkʷel* ‘friend’
gʷ	gʷ	Hmed *iǧʷen* ‘one’, *gʷ* ‘in’
ggʷ	gːʷ	Zerqet *ṯaḏeggʷaṯ* ‘evening’, *iregg*ʷ*el* ‘he escapes’, *azeggʷaġ* ‘red’
ġʷ	ɣʷ	Zerqet *ṯiseġʷesṯ* ‘broom’, *ṯaġʷummerṯ* ‘corner’, *ṯiġʷmas* ‘molars’

Most consonants in Senhaja have a voice opposition. The following consonants form pairs of voiceless and voiced counterparts:

(p) – b	s – z	k – g
t – d	ṣ – ẓ	k̲ – (ḡ)
ṭ – ḍ	š – ž	ḫ – ġ
ṯ – ḏ	č – ǧ	

In Senhaja, *ḡ* is very marginal (it is found in parts of Zerqet, for example). Within Ketama, *ḡ* is found in a few lexemes, in free variation with *g*. Phonetically, *ḡ* also occurs in Ketama as a voiced realization of *ḵ* as a result of assimilation. The following sections discuss other contrastive features in Senhaja consonants: length, pharyngealization, spirantization, assibilation, and labialization.

2.1.2. Length: Short and Long Consonants

There is a distinction between short and long consonants. Long consonants have been analyzed as tense by some scholars (Galand 2002: 147-161), and as geminated by others (Saïb 1997). In this thesis, we use the neutral term "long", following Kossmann 2012a: 25.[123] In Berber, short consonants and their "long" counterparts do not differ in length alone. Since length plays an important role in the opposition, it is taken here as the definition of contrast (cf. Chaker 1984; Ouakrim 1995; Louali & Maddieson 1999, Kossmann 2012a: 25). Long consonants are written by doubling the letter. Consonantal length can be lexical, morphological (used in morphological oppositions), or a result of assimilation.

Almost every consonant has a long counterpart. In Senhaja, consonant length is neutralized word-finally. We indicate underlying length (that is apparent from contrasting forms) in parentheses, e.g. *i-sel(l)* 'he heard', cf. *sell-en* 'they heard' (Ketama/Taghzut/Hmed). A sequence of a long consonant and its short counterpart is not allowed, e.g. Zerqet *ġellel* 'to milk', *ġell=it* (**ġelll=it* < **ġellel=it*) 'milk it!'.

2.1.2.1. Overview of short and long counterparts

Pairs of short and long consonants are established in morphological oppositions. While most consonants have a long counterpart, sometimes, this opposition is combined with another feature. Short fricatives typically have long stops as their counterparts, although long spirantized consonants also occur in the language.[124]

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[123] However, we also use the terms *gemination* (for the consonant lengthening) and *degemination* (for the loss of the consonant length), which are common in the literature on Berber. Besides, the terms *geminated, gemination* are also common in the literature on Arabic, for example in the description of the formation of the so-called stem II of the verb (cf. Section 3.3.6), which is often found in Senhaja. This stem is derived from stem I by doubling (geminating) the second radical. Such verbs are also referred to as "C2 geminated", and we adopt this terminology here.

[124] For example, long *ḵḵ* is rare and can occur in free variation with *ḵ* or *k(k)*. It is found e.g. in *muḵḵa* (alongside *muḵa*) (Zerqet) 'owl'; *piḵḵa* (Seddat), *paḵḵa* (Zerqet) 'chameleon'. Optionally, long *ḵḵ* occurs in some types of Imperfectives, e.g. *ḵ(ḵ)ruy* (Zerqet), Imperfective of *ḵri* 'to rent'.

Fricative/plosive pairs in Senhaja include: *t̲ – tt, d̲ – dd, b̲ – bb* and *ḡ – gg*. Some phonemes have "short" and "long" variants which however do not function in morphological oppositions, e.g. *p* and *pp*, *l̩* and *l̩l̩*. Below, the short and long counterparts that are found in morphological oppositions are listed.

Short and long consonant pairs in Senhaja

b – bb (also b̲ – bb)	r – rr	z – zz (also z– ddz)	q – qq
f – ff	ṛ – ṛṛ	s – ss (also s – tts)	ġ – qq
d – dd (also d̲ – dd)	n – nn	ẓ – ẓẓ (also ẓ – ḍḍẓ)	w –gg^{w} ~gg (~ww)
t – tt (also t̲ – tt)	m – mm	ṣ – ṣṣ (also ṣ – ṭṭṣ)	y – ll (< *l – *ll)
ṭ – ṭṭ	ḫ – ḫḫ	ǧ – ǧǧ	ž – žž (< *l – *ll)
ḍ/d̲ – ṭṭ	ɛ – ɛɛ	ž – žž (also ž – ǧǧ)	y – ǧǧ (< *l – *ll
k – kk (also k̲ – kk)	ḥ – ḥḥ	š – šš (also š – čč)	l – ǧǧ (< *l – *ll)
g – gg (also ḡ – gg)			

See the following section on some special short/long counterparts including the reflexes of the original **l – *ll* pair. As Imperfective stem is often (albeit not always) formed by doubling the second radical, we use the Aorist/Imperfective forms to illustrate the length opposition in Senhaja. Below are some examples of short/long counterparts.

Examples of regular short/long pairs in Senhaja

Pair	**Aorist**	**Imperfective**	**Translation**	**Variety**
b̲–bb	sb̲aġ	sebbaġ	paint	H
d–dd	bdu	beddu	start	Snh.
d̲-dd	sd̲el	seddel	incubate	Z
f–ff	rfes	reffes	knead	Snh.
g–gg	rgel	reggel	close	Z
ǧ–ǧǧ	nǧer	neǧǧer	carpenter	H
ḥ–ḥḥ	lḥes	laḥḥes	lick	H
k–kk	sken	sekken	dwell	K/H
n–nn	bnu	bennu	build	Snh.
r–rr	k̲rez	k̲errez	plow	Snh.
s–ss	k̲es	k̲ess	herd	K/H
ṣ–ṣṣ	lṣaq	leṣṣaq	stick	Snh.
š–šš	k̲šem	k̲eššem	enter	K

t–tt	ftaḥ	fettaḥ	open	Snh.
ṯ–tt	fṯel	fettel	roll couscous	Snh.
ṭ–ṭṭ	šṭaḥ	šeṭṭaḥ	dance	Snh.
z–zz	rzu	rezzu	delouse	K/H

2.1.2.2. Special short/long counterparts

1) ḍ/ḏ – ṭṭ; ġ – qq; and *w – gg/gg^{w}*

There are some special short/long pairs in Senhaja (these are also found in other Berber varieties): *ḍ/ḏ – ṭṭ*; *ġ – qq*; and *w – gg/gg^{w}* (~ *ww*). The first two correspondences are illustrated in the following examples.

Aorist	**Imperfective**	**Translation**	**Variety**
bḏu	beṭṭu	fall	Z
ġer	qqar	study	Snh.
ġez	qqaz	dig	H

While the long counterpart of *ḍ/ḏ* is usually *ṭṭ*, there are some exceptions. Consider the following Aorist and Imperfective stems of the verb 'to oversee, take care of' in three Senhaja varieties.

Aorist	**Imperfective**	**Variety**
ḥḏu~ḥḏi	ḥeṭṭu	Z
ḥḏi	ḥeṭṭi	H
ḥḏi	ḥeḍḍi/ḥeḏḏi	K

In the case of this verb, Ketama has the unusual (regularized) *ḏ – ḍḍ/ḏḏ* correspondence. However, exceptions are also found in Zerqet and Hmed, e.g. (Zerqet) *neḍḍel*, Imperfective of *nḍel* 'to bury' (cf. Hmed *neḍḍi*, Imperfective of *nḍi* 'id.').

In varieties that have labialized velars (majority of Senhaja excluding Ketama and Taghzut), *w* usually corresponds to *gg^{w}* in morphological oppositions. In Ketama and Taghzut, *w* often corresponds to *gg* (original *gg^{w}* that lost labialization). Note that *ww* exists as a phoneme, and sometimes also serves as a long counterpart of *w*. The following table shows these correspondences.

Ketama	Taghzut	Zerqet	Translation
rwi – rewwi ~ reggi	rwež – reggež	rwel – regg^{w}el	escape
zwi – zewwi	zwi – zewwi	zwi – zegg^{w}i	shake off

The verb *w(w)eṭ* 'to hit' is unique (as in many other Berber varieties): here, *w(w)* corresponds to *kk(ʷ)* in the Imperfective: *wweṭ – kk^{w}aṭ* (Zerqet/Hmed); *wweṭ – kkaṭ* (Ketama).

2) Original *l – ll* correspondence

The originally regular pair **l – *ll* has developed into the following correspondences in Senhaja:[125]

Ketama/Hmed	Taghzut	Seddat/Bunsar	Zerqet	Original
y – ll	ž – žž	y – ǧǧ	l – ǧǧ	*l – *ll

Some examples follow.

Ketama/Hmed	Taghzut	Bunsar	Zerqet	Transl.
myek̲ – mellek̲	mžek̲ – mežžek̲	myek̲ – meǧǧek̲	mlek̲ – meǧǧek̲	marry
ḫyaq – ḫellaq	ḫžeq – ḫežžeq	ḫyaq – ḫeǧǧaq	ḫlaq – ḫeǧǧaq	be born
hyek – hellek	hžek̲ – hežžek̲	hyek – heǧǧek	hlek – heǧǧek	be sick

There are some exceptions to this general rule caused by different factors. Thus, *l* does not always become *y*, while *ll* does not always become *ǧǧ*, especially in Arabic loans.

3) Long counterparts of sibilants

In Zerqet, a short sibilant corresponds to an affricate long consonant. Thus, we find the following correspondences: *s – tts*, *ṣ – ṭṭṣ*, *z – ddz*, *š – čč*, and *ž – ǧǧ*.[126] The correspondence *š – čč* is more widespread, both within the lexicon and across Senhaja, as it is also found in Seddat, Hmed, and Taghzut. The following table summarizes the correspondences of short sibilants in Senhaja.

[125] See below (Section 2.1.7) on the fate of the original **l* and **ll*.

[126] These correspondences are also found in Figuig (Kossmann 1997b: 29) and Kabyle (Dallet 1982) and, for *š – čč*, also in Ghomara (Mourigh 2015: 26).

Correspondences of short sibilants in Senhaja

Short	**Corresponding long counterpart in different varieties**			
	Ketama	**Taghzut/Hmed**	**Seddat**	**Zerqet**
s	ss	ss	ss (~ tts)	tts (~ ss)
ṣ	ṣṣ	ṣṣ	ṣṣ	ṭṭṣ (~ ṣṣ)
z	zz	zz	zz	ddz (~ zz)
š	šš	čč	čč	čč
ž (~ǧ)	ǧǧ ~ žž	ǧǧ ~ žž	ǧǧ ~ žž	ǧǧ ~ žž

The following table provides some examples from Zerqet.[127]

Pair	**Aorist**	**Imperfective**	**Translation**
s – tts	fsaḫ	fettsaḫ	untie
z – ddz	ḫzeṛ	ḫeddzeṛ	see
ṣ – ṭṭṣ	ḫṣeṛ	ḫeṭṭṣer	lose
š – čč	ḵšem	ḵeččem	enter
ž – ǧǧ	nžer	neǧǧer	carpenter

Long *šš* is also found as a long counterpart of *š*, e.g. in *ḥšem* – *ḥeššem* ‘to be ashamed’. The correspondence *ž* – *ǧǧ* needs some additional notes. First of all, *ž* can also correspond to *žž*. Second, there is sometimes free variation between *ž* and *ǧ* in the Aorist and Perfective forms of the verb. For some verbs, then, we can state that *ž* corresponds to *žž* and *ǧ* corresponds to *ǧǧ*. Nevertheless, for some verbs, there is a preference to have a short *ž* in the Aorist/Perfective and a long *ǧǧ* in the Imperfective, e.g. (Zerqet) *nžer* – *neǧǧer* ‘to carpenter’ (vs. Hmed *nǧer* – *neǧǧer*).

2.1.3. Pharyngealization

Pharyngealized consonants are also called “emphatic” in literature on Berber. In Senhaja, as in other Berber varieties, pharyngealization occurs with dentals and alveolars. As noted by Kossmann (2012a: 25), only two pharyngealized phonemes can be reconstructed for Proto-Berber, *ḍ* and *ẓ*. Other pharyngealized phonemes developed in Berber later (some under the influence from Arabic). The following table lists pairs of non-pharyngealized and pharyngealized consonants.

[127] Most of the Imperfective forms also have an alternative variant derived by other means.

Non-pharyngealized and pharyngealized consonants in Senhaja

Short Consonants		Long Consonants	
t	ṭ	tt	ṭṭ
d	ḍ	dd	ḍḍ
d̲	ḍ̲	(d̲d̲)	ḍ̲ḍ̲
s	ṣ	ss	ṣṣ
z	ẓ	zz	ẓẓ
r	ṛ	rr	ṛṛ
l	(ḷ)	ll	(ḷḷ)

Examples of minimal pairs include:

- *anzar* ‘nose’ vs. *anẓar* ‘rain’ (Bunsar);
- *lluz* ‘almonds’ vs. *ḷluẓ* ‘to be hungry’ (Hmed);
- *rez* ‘to return (something)’ vs. *ṛeẓ* ‘to break’ (Hmed);
- *rwi* ‘to flee’ vs. *ṛwi* ‘to soak’ (Hmed);
- *issenday* ‘he is churning’ vs. *iṣṣenday* ‘he is getting ripe’ (Zerqet);
- *ssif/ssayf* ‘sword’ vs. *ṣṣif/ṣṣayf* ‘summer’ (pan-Snh.);
- *nnes* ‘his/her’ vs. *nneṣ* ‘half’ (pan-Snh.).

Pharyngealization is not always strongly pronounced in Senhaja. Also, the lexical distribution depends on the dialect: there are words that contain pharyngealized phonemes in some dialects, but not in others. For example, one finds a minimal pair *izi* ‘fly’ vs. *iẓi* ‘gallbladder’ in the majority of Senhaja.[128] These have merged in Taghzut. Alongside examples of depharyngealization, there are also some examples of the opposite nature, i.e. Senhaja pharyngealized consonants corresponding to non-pharyngealized ones elsewhere. The following examples contrast Senhaja and Kabyle (in both cases, Senhaja *ṣ* probably became emphatic under the influence of *ġ*):

- Senhaja *iġeṣ* (PL *iġṣan*) vs. Kabyle *iġes* (PL *iġsan*) ‘bone’;
- Senhaja *aṣġun* vs. Kabyle *aseġwen* ‘cord, rope’.

Pharyngealization tends to spread to other phonemes (consonants and vowels): a pharyngealized consonant can cause other consonants to become pharyngealized, and it causes vowels to be lowered. Lowered vowels are, in fact, a clue for distinguishing pharyngealized from non-pharyngealized phonemes, in Berber as well as in Arabic. In this work, pharyngealization is marked on all pharyngealized consonants of the word, including affixes. Clitics are written in their underlying form. Thus, 3S:IO clitic *as* is

[128] In Bunsar, the minimal pair is *izi* ‘fly’ and *iẓẓi* ‘gallbladder’, i.e. *z* vs. *ẓẓ*.

written as *as*, even if it is realized as *aṣ* in combination with a verb stem that has emphatic consonants. The following examples illustrate pharyngealization spread to affixes and clitics in Senhaja:

- *ssuḍeḍ* > *ṣṣuḍeḍ* 'to nurse' (CAUS prefix *ss-* > *ṣṣ-*);
- *š-aˆt-ṭiyyeb* > *š-aˆṭˆṭiyyeb* 'she will cook' (3FS prefix *t-* > *ṭ-*);
- *i-ṣeṛṛḍ=as* > *i-ṣeṛṛḍ=aṣ* 'He sent to him/her' (3S:IO clitic *as* > *aṣ*).

2.1.4. Spirantization: Plosive and Spirantized Consonants

2.1.4.1. Introduction

In Berber Studies, the term spirantization is used to describe a process which turns short stops into (flat) fricatives.[129] Spirantization is a feature found in many Berber varieties, from Ghomara and Senhaja in the West to Tunisian Berber in the East (cf. Kossmann 2012a: 27). In many cases, the place of articulation changes as well. Namely, the fronting takes place, e.g. dentals become interdentals (e.g. *t* > *ṯ*, *d* > *ḏ*). In this work, following a tradition in Berberology, spirantization is marked by a bar underneath the letter.

The spirantization in Senhaja is not as regular as in Tarifiyt, and does not follow the same rules as Ghomara (see Mourigh 2017). In Senhaja, spirantization is not exactly the same across different varieties. While the changes *t* > *ṯ*, *d* > *ḏ*, and *k* > *ḵ* are found in all varieties, the changes *b* > *ḇ* and *g* > *ḡ* are limited to specific varieties or words (*ḇ* is found in Taghzut, Hmed, Bunsar and parts of Zerqet; *ḡ* is found in Seddat and parts of Zerqet). Moreover, spirantization is not always consistent. The same word can be variously pronounced with and without spirantization even by the same speaker, e.g. *adrar*~*aḏrar* 'mountain', *kšem*~*ḵšem* 'to enter', *id* ~ *iḏ* 'and'.[130] This is the case in many words, but there are also words that are consistently pronounced with or without spirantization, and there are some minimal pairs distinguished by spirantization alone, e.g.

- *ka* 1) question marker, 2) counterfactual if' vs. *ḵa* 'how' (Ketama);[131]

[129] This is a conventional term which might be somewhat misleading, as in Berber Studies it does not describe a change of stops to sibilants (such as *t* > *s*). Some types of Berber spirantization could be also described with a general term *lenition*. Berber spirantization involves fricativization (e.g. *t* > *ṯ*), but also subsequent changes such as *ṯ* > *h* (> Ø).

[130] Different from Ghomara (Mourigh 2017), spirantization can happen anywhere in the word in Senhaja.

[131] In the case of *ka* (question marker), the non-fricative pronunciation betrays a borrowing from Arabic *lukan* 'counterfactual if', cf. Souag 2018: 64. Hmed has *ka* 'question marker' vs. *kʷa* 'counterfactual if'.

- *ṣb̲aḥ* ‘to be morning’ (e.g. *i-sb̲aḥ lḥal* ‘it is morning’) vs. *ṣbaḥ* ‘to be nice’ (e.g. *i-ṣbaḥ* ‘he is nice’) (Hmed and Wersan dialect of Zerqet).

2.1.4.2. Stage 2 Spirantization with Subsequent Mergers

In some varieties, spirantized consonants have developed further into different sounds. Such subsequent changes can be described as ‘stage 2 spirantization’ (e.g. $g > \bar{g} > y$; $t > \underline{t} > h$). In extreme cases, the spirantized phoneme may become zero (e.g. $g > \bar{g} > y > Ø$ and $t > \underline{t} > h > Ø$). The consonant *g/ḡ* has merged with *y* in some words in Eastern Senhaja (Hmed, Bunsar, Zerqet, Mezduy), whereas Western Senhaja (Ketama, Taghzut, Seddat) retains *g*. The following examples show this correspondence (see also Section 2.1.2.2 on correspondence of *g* with *w*).

West Snh. (K/T/S)	**East Snh. (H/B/Z/M)**	**Translation**
agenduz	ayenduz	bull
argaz	aryaz	man
agelzim	ayelzim	pickaxe

However, not all *g*’s developed into *y* in Eastern Senhaja, and there are many words with *g* (or *ḡ* in parts of Zerqet). There is a split of *g* in Eastern Senhaja: some words preserve *g/ḡ*, while others exhibit the change *g/ḡ* > *y*. So far, no conditioning factor has been established to describe where this change occurs.

Another partial merger is found in Ketama, as well as in Taghzut dialects outside Lqela (e.g. Beni Khlef). Here, in specific contexts, spirantized *t̲* has developed into *h* (and sometimes further into *a* or Ø).[132] This is true for the verbal prefix marking 2S, 3FS and 2P, which is realized as *t̲-* in the majority of Senhaja and in Lqela dialect of Taghzut, as *h-* in Taghzut outside Lqela and in Beni Aisi dialect of Ketama, and as *ah-/a-* in Beni Hmed and the remaining Ketama dialects. Compare the realizations of the verb form ‘she entered’ in different Senhaja varieties:[133]

Most Senhaja incl. Taghzut (Lqela)	**Ketama (Beni Aisi), Taghzut (Beni Khlef)**	**Ketama (outside Beni Aisi)**	**Transl.**
t̲-ek̲šem	h-ek̲šem	a(h)-k̲šem	she entered

[132] Outside Ketama and Taghzut, *t* > *h* is also found in Ghomara (Mourigh 2015), Chaouia (Lafkioui & Merolla 2002) and Chenoua (Laoust 1912). However, the exact contexts where this change occurs differ.

[133] In Ghomara, there is free variation between *t-* and *h-* in the verb subject prefix in the Perfective, e.g. *te-k̲šem* ~ *he-k̲šem* (Mourigh 2015).

Feminine singular nouns in Berber typically have the circumfix *t-…-t*, i.e. the prefix *t-* and the suffix *-t*. This has become *ṯ-…-ṯ* in Senhaja. The prefix is realized as *ṯ-* in the majority of Senhaja including Lqela dialect of Taghzut, but has been lost entirely in Ketama (cf. Lafkioui 2007a, map 53). In Hmed, by contrast, the feminine suffix *-ṯ* is often optional. In Taghzut dialects outside Lqela, it is either lost or realized as *h-*. Compare the word for 'fig' in different Senhaja varieties:

Most Senhaja incl. Taghzut (Lqela)	**Hmed**	**Taghzut (Beni Khlef)**	**Ketama**	**Translation**
ṯ-azar-ṯ	ṯ-azar(-ṯ)	(h-)azar-ṯ	azar-ṯ	fig

Some feminine nouns (exceptionally) preserve the prefix *ṯ-* in Ketama. These are normally nouns that do not lose their vowel in the annexed state (cf. Section 6.2.4.2), e.g.

- *ṯayya* (cf. Zerqet *ṯahala*) 'water spring';
- *ṯerga* (cf. Bunsar/Hmed/Zerqet/Mezduy *ṯarwa*~*ṯaṛwa*) 'canal';
- *ṯamuda* 'sow (female pig)' (Hmed *ṯamuḏa*);
- *ṯurin* (pl. tant.) (same in Bunsar/Zerqet/Mezduy) 'lungs'.

The 2S/3FS/2P verb prefix is usually realized as *h-* or *a-*~*ah-*, but not as "zero" in Ketama (unlike the feminine nominal prefix), except for assimilation contexts.

There are also some other examples of *ṯ* > *h* (>Ø) outside the context of these grammatical markers, e.g. in the pronominal system:

- 3FS independent pronoun is *nettaṭa* in most Senhaja (Hmed *nṭṭa*), *nettaha* in Ketama, and *nṭṭaha* in Taghzut (including Lqela);[134]
- 3MS:DO clitic is *ṯ* in most Senhaja, and 3FS:DO clitic is *t* in most Senhaja (*ṯ* in Hmed and Taghzut), but both can be realized as *h* in Ketama in specific contexts (when in intervocalic position, see Sections 5.3.1.2 and 14.2.1);
- 3P:DO clitic is *ṯen* in most Senhaja, but is realized as *hen* in Ketama when following a vowel (see Section 5.3.1). Even in Hmed (which normally does not have *ṯ* > *h*), 3P:DO clitic is realized as *hen* when fronted.

Another example of different realizations of *t* is found in the 3P pronoun 'they' (cf. Lafkioui 2007a: map 136). Here, the change *ṯ* > *h* is not limited to Ketama and

[134] Cf. Lafkioui 2007a, maps 54 and 132 on the 3FS pronoun. According to map 132, Ketama and Taghzut have *nettaha* (vs. *nettaṭa* in the rest of Senhaja). According to map 54, *nettaha* is also found (alongside *nettaṭa*) in Hmed. We found only *nṭṭa*, *nṭṭani* for 'she' in Hmed (Imugzan and Tafurnut).

Taghzut (*nehnim*), but is also found in Hmed *nehnum(i)*. The remaining varieties preserve *t*: Seddat/Bunsar/Zerqet *ntumi* (alongside *ntami*), Mezduy *neṯnin*. In Bunsar, also variants where *t* > Ø are found, *nimi* and *numi*. Generally, this pronoun has more variants than the 3FS pronoun. To sum up, in Ketama, *t* > *ṯ* > *h* (> Ø) is found in the following contexts:

- the FS nominal prefix (*ṯ* > Ø);
- 2S/3FS/2P verb subject prefix (*ṯ-* > *h-/a-/ah-*);
- in the pronominal system (third person DO clitics and independent pronouns).

The following table lists spirantized counterparts of plosives in Senhaja, including stage 2 spirantization that concerns only specific varieties, words, and contexts.

Spirantization in Senhaja

Stop	Fricative	Variety	Stage 2	Variety
b	b̲	T/H/B, parts of Z		
d	d̲	pan-Senhaja		
t	t̲	pan-Senhaja	h/Ø	K, parts of T
ḍ	d̲[135]	pan-Senhaja		
k	k̲	pan-Senhaja		
g	ḡ	S/B, parts of Z	y	B/H/Z

Taghzut

Within Ketama, the change *ṯ* > Ø as a feminine prefix and *ṯ* > *h/a-* as a 2S/3FS/2P verb prefix is found in all the dialects. This is not the case for Taghzut, where there is a major division between the dialect of Lqela vs. the rest. In the dialects outside Lqela, *ṯ* is realized as in Ketama. In Lqela, *ṯ-* is preserved both as a feminine nominal prefix and as a verb marker of 2S/3FS/2P. Lqela is thus more conservative in this regard, and behaves like other Senhaja varieties.

2.1.4.3. Optional and Obligatory Spirantization

In Senhaja, spirantization is often optional, and there is dialectal variation. Within Ketama, Beni Aisi speakers tend to spirantize more than Sahel speakers. The following examples show the most frequent pronunciations, although both variants are used in each village.

[135] As discussed below (Section 2.1.4.3), some stops and their spirantized counterparts (including *ḍ* and *d̲*) are not always well-opposed.

Beni Aisi	Sahel	Translation
k̲šem	kšem	to enter
k̲rez	krez	to plow

In the following words, spirantized phonemes are preferred in Ketama (and usually in cognate words in other Senhaja varieties), and variants with stops are rare: *aḏ̲ar* ‘foot’, *ak̲ay* ‘earth’, *ak̲er* ‘steal’, *ḏ̲i* ‘here’, *ḏ̲in* ‘there’, *ik̲mez* ‘nail’, *k̲a* ‘how’, *k̲unni* ‘you (PL)’, *waḏ̲* ‘this (M)’, *yaṯ̲* ‘one (F)’, *zziṯ̲* ‘oil’. In the following words, by contrast, non-spirantized phonemes occur in Ketama (and usually in cognate words in other varieties, but not always). Non-spirantized stops often originated from long phonemes or borrowings (but not always): *askaw* ‘horn’, *azka* ‘tomorrow’, *ṯ̲amuda* ‘sow (female pig’, *ka* ‘question marker; if (counterfactual)’, *lkelma* ‘word’, *sker* ‘be drunk’, *šk̲un* ‘who, what’, *walakin* ‘but’. However, in many cases, in native Berber as well as in borrowed words, spirantization is possible, but not obligatory. Spirantized consonants are usually preferred in the Hmed variety, for native lexemes as well as for Arabic loans, at least when the word is Berberized. Consider the following examples in Ketama and Hmed: in Ketama, two variants are found.

Ketama	Hmed	Transl.	Ketama	Hmed	Transl.
aserdun/aserḏ̲un	aserḏ̲un	mule	krez/k̲rez	k̲rez	to plow
irden/irḏ̲en	irḏ̲en	wheat	lemdina/lemḏ̲ina	lemḏ̲ina	town
kmez/k̲mez	k̲mez	to scratch	lḫ̲edma/lḫ̲eḏ̲ma	lḫ̲eḏ̲ma	work

The feminine suffix *-ṯ̲*

Generally, the feminine suffix *-ṯ̲* tends to be spirantized in most Senhaja varieties, even after another consonant including a nasal or a liquid. However, spirantization of *-ṯ̲* is blocked by the preceding nasal in Zerqet. In Hmed, the feminine singular suffix is consistently *-ṯ̲* in such cases, and may be optionally left out. The following table summarizes the most frequent forms of the FS suffix following consonants in three Senhaja varieties and lists some examples.

	Ketama *-Cṯ̲ (-Ct)*	Hmed *-C(ṯ̲)*	Zerqet *-Cṯ̲, -nt, -mt*	Transl.
-lt	abṣelṯ̲	ṯ̲ibṣel(ṯ̲)	ṯ̲ibṣelṯ̲	onion
-rt	iskkerṯ̲	ṯ̲isker(ṯ̲)	ṯ̲iskerṯ̲	garlic
-nt	aserdunṯ̲	ṯ̲aserdun(ṯ̲)	ṯ̲aserdunt	f. mule
-mt	agelzimṯ̲	ṯ̲ayelzim(ṯ̲)	ṯ̲ayelzimt	adze

2.1.5. Assibilation (*t* vs. *ṭ*)

In Taghzut, Hmed, and parts of Seddat (e.g. Talarwak dialect), we find the change *t* > *ṭ* [t͡s]. This change is referred to as assibilation. At the same time, *t* is also encountered in the varieties in question. In this section, the assibilation in Hmed is described, which is different from assibilation in Taghzut. Further research is needed in order to establish the exact conditioning of assibilation in these varieties. In Hmed, the assibilated *ṭ* can be followed by *t* or *ṯ* (without assimilation): *ṭ* is fully released, before the following *t* or *ṯ* is released, e.g. *nṭṯa* 'she'.

ṭ

Examples of a single *ṭ* in Hmed are found e.g. in *aṭay* 'tea', *lmakṭaba* 'library'. In a few examples, *-eṭ* is a FS suffix. Unlike the suffix *-ṯ*, this suffix cannot be omitted, e.g. *ṯizerfeṭ* 'path'; *ṯaquqeṭ* 'walnut'; *ṯibireṭ* '(draw-)well' (< Ar. *lbir*), cf. PL *ṯibiraṭin*. A single *ṭ-* is found as the Imperfective verb prefix, e.g. *ṭani*, Imperfective of *ani* 'to ride'; *ṭebber*, Imperfective of *bber* 'to bite'; *ṭduḇay*, Imperfective of *duḇ* 'to melt'. In Hmed, *ṭ-* of the Imperfective prefix does not assimilate to the following *t(t)-* of the verb stem or the passive, e.g. passive *ttežraḥ* 'to be injured' (Aorist) > *ṭettežraḥ* (Imperfective). Cf. Section 14.1.1.2 on assimilations.

ṭṭ

Long *ṭṭ* occurs e.g. in *ṭṭan* 'to bark'; *ṭṭu* 'to forget'; *ṭṭeffaḥ* 'apples'; *asṭṭur* 'coop'; *neṭṭa* 'he'. Long *ṭṭ-* is also found in the passive prefix *ṭṭuya-*, e.g. *ṭṭuyaṭef*, passive of *ṭṭef* 'to catch'; *ṭṭuyaḵer*, passive of *aḵer* 'to steal'. The passive prefix *tt-* is often assibilated in Taghzut, but not in Hmed. Compare: Taghzut *ṭṭeḇna* vs. Hmed *tteḇna*, passive of *ḇnu* 'to build'.

t

A single non-assibilated *t* is found in Hmed in some Arabic loans, e.g. *tiq* 'to trust'; *tyemmem* 'to perform ablution without water'; *tafaq* 'to agree'; *rtaḥ* 'to sit/rest'; *tellef* 'to lose' (cf. *nnetlef* 'to be lost'). A single *t* is sometimes found as a FS suffix in native Berber words, e.g. *ṯamwat* 'cow'; *ṯahat* 'chameleon'.

tt

Long *tt* is found in Hmed e.g. in *ttrikku* 'sweater' (< Fr. *tricot*); *ttekteb* 'to be written', suppletive passive of *ari* 'to write'; *tteḵrez* 'to be plowed', passive of *ḵrez* 'to plow'; *fetti*, Imperfective of *fti* 'to recite'; *fettaḥ*, Imperfective of *ftaḥ* 'to open'; *ḫatt-i* 'my maternal aunt'.

2.1.6. Labialization and its Traces

2.1.6.1. Introduction

As discussed in Section 1.8.1.1 (isogloss 5 in Kossmann 2017a), labialized velars and uvulars exist in most Senhaja varieties, but are absent in Ketama and Taghzut, although some traces of the lost labialization are still visible. The following two examples show variation in Senhaja with regard to labialization (cf. Section 1.8.1.1):

- 'partridges': Ketama/Taghzut *(ṯ)iskrin* vs. the rest of Senhaja *ṯisḵʷrin/ṯiskʷrin* (cf. Lafkioui 2007a, map 112);
- 'elbow/corner': Ketama *(ṯ)aġmart*, Taghzut *iġmer*, Seddat *ṯaġummerṯ*, Hmed *ṯiġmarṯ* vs. Zerqet *ṯaġʷummarṯ* (our data differ from Lafkioui 2007a, map 311).

Labialized velars and uvulars do not occur in Ketama and Taghzut, while the remaining varieties have them, albeit not always in the same lexemes. Differently from Ghomara (Mourigh 2015: 59), the schwa adjacent to the labialized phoneme is not always realized as *u* in Senhaja.[136] In some lexemes, labialization has been lost, and its traces are only visible in the vowel *u*, e.g. Seddat *ṯaġummerṯ* 'elbow/corner'. In Ketama, where labialization is absent, its traces are present in some lexemes in the form of *u* (*< e*).

2.1.6.2. Examples of Labialization in Senhaja

Below follow examples of labialized phonemes from different Senhaja varieties (excluding Ketama and Taghzut, that lack these phonemes).

	Example	**Variety**	**Transl.**	**Notes**
ḵ(ḵ)ʷ	aḵʷer	S/Z	steal	Z also *aḵḵʷer*. H *aḵer*
kʷ	ṯikʷet	S	worm	Z/H *ṯiwkkiṯ*
	kʷa	H	if	(counterfactual) < Ar. *lukan*
kkʷ	amddakkʷel	Z	friend	S/B *amddakkʷi*, H *amdakkʷi*
	aɛekkʷaz	H/Z	rod	
ġʷ	ṯiṣeġʷeṣṯ	H/Z	broom	
	ṯaġʷummarṯ	Z	elbow/corner	H *ṯiġemmarṯ*, K *aġmarṯ*
	ṯiġʷmesṯ	S	molar tooth	K *aġust*, T *iġest/ṯaġesṯ*

[136] There are a few examples of *u* in the vicinity of a labialized phoneme, but they are rather exception, e.g. Zerqet *ṯaġʷummarṯ* 'elbow/corner' (*e > u* between a labialized phoneme and a bilabial), *ṯaggʷuṯ* 'fog', and Hmed *ṯaggʷur(ṯ)* 'door'. In the last two examples, *u* is probably etymological.

The phoneme *gg*^{w} is the most frequent labialized phoneme in our database, largely because *gg*^{w} is a long counterpart of *w* found e.g. in the Imperfective verb stems, e.g.

- *ḫegg*^{w}*i* (Hmed/Zerqet) Imperfective of *ḫwi* 'to empty';
- *regg*^{w}*el* (Zerqet), Imperfective of *rwel* 'to escape',
- *zegg*^{w}*i* (Hmed/Zerqet), Imperfective of *zwi* 'to shake off';
- *negg*^{w} (Hmed), Imperfective of *ww* (<**nw*) 'to be ripe, to cook'.

This phoneme is also found outside Imperfective verb forms, e.g.

- *ugg*^{w} (Zerqet) 'to knead';
- *gg*^{w}*eḏ* (Zerqet) 'to fear';
- *gg*^{w}*eḍ* (Hmed), Perfective of *aweḍ* 'to arrive';
- *gg*^{w}*i* (Hmed), Perfective of *awi* 'to take'.

The following examples demonstrate *gg*^{w} in nouns:

- *aḏegg*^{w}*ay* (Hmed) 'wife's brother/father' (Ketama *aḍeggay*);
- *ṯaḏegg*^{w}*aṯ* (Zerqet/Hmed) 'evening' (Bunsar *ṯaḏuggaṯ*);
- *ṯagg*^{w}*erṯ* (Bunsar) 'door' (Taghzut *ṯaggurṯ*, Ketama/Zerqet *ṯawwerṯ*);
- *ṯagg*^{w}*eṯ* (Bunsar)/*ṯagg*^{w}*uṯ* (Zerqet) 'fog' (Hmed *ṯawweṯ*).

A single *g*^{w} is rare in our database, and has only been found in Hmed:

- *ig*^{w}*en* (Hmed) 'one', cf. Seddat *igg*^{w}*en*, Zerqet *yewwen*, Ketama *yan*;
- *g*^{w} (Hmed) 'in', cf. Ketama *g*.

2.1.6.3. Examples of Lost Labialization in Ketama

In the following verbs, Ketama (similar to Ghomara, Mourigh 2015: 59-62) has *u* in some verb forms that disappears when the vowel occurs in an open syllable. This *u* typically corresponds to the underlying *e* (realized as *a* before back consonants, cf. Section 2.2.3.1) in the rest of Senhaja including Taghzut. For such verbs, Mourigh (2015: 59-62) proposes an underlying labialization in Ghomara, on the basis of other forms which have actual labialization. This is different from Ketama, where in contrasting forms, there are no traces of labialization, and the vowel *u* (<*e*) simply disappears. We first present examples with *u* that are common for Ketama and Ghomara and that correspond to *e* in the rest of Senhaja.

Ketama	**Ghomara**	**Most Senhaja**	**Translation**
nuġ	nuġ /neġ^{w}/	naġ /neġ/	kill
suġ	suġ /seġ^{w}/	saġ /seġ/	buy
ffuġ	ffuġ /ffeġ^{w}/	ffaġ /ffeġ/	go out
kkur	kkur /kk^{w}er/	kker (~ nker)	get up

Apparently, Ketama originally had a situation similar to Ghomara, where schwa adjacent to a labialized consonant was realized as *u*, but lost labialization without a trace in other contexts, including the contexts where the original schwa comes to stand in an open syllable. The following table demonstrates how original labialization manifests itself in the form of the vowel *u* (in the Imperative Singular) which is lost in an open syllable (Imperative Plural forms).

IMP	**'to kill'**	**'to buy'**	**'to go out'**	**'to get up'**
SG	nuġ	suġ	ffuġ	kkur
PL	nġ-aṯ	sġ-aṯ	ffġ-aṯ	kkr-aṯ

Compare the following examples contrasting the Aorist 1S form (open syllable, due to the 1S suffix *-a*) and 3MS form (closed syllable, with the vowel *u* instead of the original schwa).[137]

AOR	**'to kill'**	**'to buy'**	**'to go out'**	**'to get up'**
1S	š-a nġ-a	š-a sġ-a	š-a ffġ-a	š-a kkr-a
MS	š-a y-nuġ	š-a y-suġ	š-a y-ffuġ	š-a y-kkur

2.1.7. The Fate of **l* and **ll*

2.1.7.1. The Fate of **l*

1) General observations

As noted previously, a single **l* usually undergoes changes in Senhaja, changing to *y(y)* in most varieties (Ketama/Seddat/Hmed/Bunsar), and to *ž(ž)* in Taghzut. Rhotacism (*l* > *r*), as in Tarifiyt, is found only in Mezduy. Word-final *-el* and *-il* > *-i* in varieties where *l* > *y*. A single *l* is preserved in Zerqet. There are, however, also examples when a single *l* or *ḷ* is used in the rest of Senhaja, especially in Arabic and European loans, e.g. *tilifun* 'phone' (<Fr. *téléphone*); *šifḷur* 'cauliflower' (<Fr. *chou-fleur*); *ġlubu* 'balloon' (<Sp. *globo*); *pḷanča* 'iron (for clothes)' (<Sp. *plancha*). In native words, the FS suffix *-ṯ* often blocks the change of **l*, e.g. *ṯaġyulṯ* 'female donkey' rather than (or alongside) *ṯaġyuyṯ* (see below for more details on *-lṯ*). There are other examples of words that (exceptionally) preserve *l*. Thus, for the lexeme 'heart', there is variation in Seddat (cf. Lafkioui 2007a: 70): *uy* in Azila, vs. *ul* in Tamadda. Also, *l* is

[137] Here as elsewhere in the thesis, the Aorist forms are listed following the future marker *š-a*.

preserved in Taghzut/Hmed *aġyul* ‘donkey’ (vs. Ketama/Seddat/Bunsar *aġyuy*), and there are more examples of this kind.

The *l-* of the Arabic article does not undergo these changes, unless it is followed by a stem starting in *l-* and thus becomes long (*ll*, which usually becomes *ǧǧ* in Seddat, Bunsar, Zerqet, and Mezduy), e.g. *llibiya* > *ǧǧubiya* ‘beans’. Some examples of pan-Senhaja borrowings with the Arabic article *l-* include: *lbeṭṭih* ‘melon’; *leččin* ‘orange(s)’; *leɛḍes* ‘lentils’; *leflus* ‘money’; *leḫmis* ‘Thursday’; *leqlib* ‘plowing’; *lqahwa* ‘cafe, coffee’.

The following table shows the reflexes of **l* in a number of words in five Senhaja varieties. For Bunsar, Tahaya Izem dialect is listed. There are dialectal differences within Bunsar in the fate of the original **l*. Thus, the original **l* can become *y* in the Luta dialect of Bunsar.

Examples of **l* in Senhaja

Ketama	Hmed	Taghzut	Zerqet	Bunsar	Translation
ṯayya	ṯahayya	ṯaža	ṯahala	ṯahaya	water spring
aseyyi	asyi	aseẑẑi	asli	aseyyi	groom
aseyyiṯ	ṯasyiṯ	ṯiẑẑiṯ[138]	ṯasliṯ	ṯaseyyiṯ	bride
zyu	zyu	žžu	zlu	zzyu	to slaughter
yyi	iyyi	iži	ili	ili	to be
weyyi	uy	už	ul	wel	heart
amdakkuy	amdakkʷi	amtakež	amddakkʷel	amdaki	friend
aḏi	aḏi	aḏiž	aḏil	aḏi	grapes
sawi	siwi	siwež	siwel	sawi	speak

There are some exceptions caused by different factors. Indeed, *l* does not always become *y* in Ketama/Seddat/Hmed/Bunsar, while *ll* does not always become *ǧǧ* in Bunsar/Zerqet, especially in Arabic loans. Thus, *ll* is found across Senhaja in the following Arabic loans: *ɛellem* ‘to learn’, *ḫelleṣ* ‘to pay’. The phoneme *l* can be affected in some varieties (often in Hmed), but remain unaltered in others (often in Ketama). Consider the following examples, where *l* is preserved in Ketama (as in Zerqet and Bunsar), but not in Hmed.

K/B/Z	H	Transl.	K/B/Z	H	Transl.
qli	qyi	to fry	ġleb	ġyeḇ	to win
qleb	qyeḇ	to turn	slaḫ	syaḫ	to skin

[138] This is a result of assimilation: *ṯisliṯ* > *ṯisžiṯ* > *ṯiẑẑiṯ*. Similarly, Taghzut *zlu* > *zžu* > *žžu* ‘to slaughter’.

In the following examples, *l* is found across Senhaja: *ġlaq* ‘to cover’, *ḥmel* ‘to be full’, *sali* ‘to finish’, *ġleṭ* ‘to err’. Some irregularities are found in native Berber words, as well, e.g.

Taghzut	**Hmed**	**Bunsar**	**Zerqet**	**Translation**
aġuž	ġuy∼ġul	aġuy	aġ(ġ)ul	become
aġyul	aġyuy∼aġyul	aġyuy	aġyul	donkey

2) Feminine nouns on *-lṭ*

In FS nouns that have suffix *-ṭ*, the final *-lṭ* may be preserved, or *l* may undergo the usual changes (*> y* in most Senhaja, *> r* in Mezduy), e.g.

- *(ṭ)agfilṭ* (Ketama/Taghzut), *ṭifilṭ* (Hmed) ‘egg’;
- *amdakkulṭ ∼ amdakkuyṭ* (Ketama), *ṭamdakkʷelṭ ∼ ṭamdakkʷeyṭ* (Hmed), *ṭamtakežṭ* (Taghzut) ‘female friend’;
- *aġyulṭ* (*aġyuyṭ*) (Ketama), *ṭaġyulṭ* (Taghzut/Hmed), *ṭaġyurṭ* (Mezduy) ‘f. donkey’;
- *(ṭ)aqbilṭ* (pan-Snh.) ‘tribe’.

The final *-l* can be preserved in Hmed even when the FS suffix *-ṭ* is absent: *ṭaġyul(ṭ)* ‘female donkey’, *ṭaqbil(ṭ)* ‘tribe’.

The final *-lṭ* is preserved in parts of Zerqet (e.g. Wersan), but changes to *-šṭ* in some dialects (e.g. Ikherruden, Aghennuy, Bunjel) and parts of Seddat and Bunsar. In parts of Seddat, Bunsar (e.g. Amaktan, Tamadit, Luta, Tahaya Yzem), and Mezduy, the final **lṭ > č* [tš]: **l* lead to the palatalization of *-t*, which became *č*.[139] For example:

- *abṣelṭ* (Ketama), *ṭibṣelṭ* (Hmed, parts of Zerqet), *ṭibṣešṭ/ṭibšešṭ* (parts of Zerqet), *ṭibṣeč* (parts of Seddat/Bunsar) ‘onion’;
- *(ṭ)agfilṭ* (Ketama/Taghzut/Zerqet), *ṭagfišṭ/ṭakfišṭ* (parts of Bunsar/Zerqet), *ṭagfič/ṭakfič* (Bunsar) ‘egg’;
- *ṭamddakkʷelṭ* (Zerqet) ‘female friend’, *ṭamddakkʷešṭ* (parts of Zerqet/Bunsar (including Tamadit, Tahaya Yzem, etc.)) ‘female friend; girlfriend’;[140]

[139] The same phenomenon is found in Central Tarifiyt (while *-lṭ* is found in Eastern varieties). Cf. Lafkioui 2007a: 75-76. The etymological *šṭ* remains unaltered in these varieties, i.e. does not yield *č*, e.g. *ṭamešmašṭ* ‘apricot (tree)’.

[140] There is no *ṭamddakkʷeč* even in those varieties that normally have *-šṭ > č* (Tamadit, Tahaya Yzem). In Ikherruden (Zerqet), the final *-lṭ* is preserved in this word, while other lexemes normally have *-lṭ > -šṭ* in this dialect. The form *ṭamddakkʷešṭ* is considered as slang in Ikherruden and is used in the sense ‘girlfriend, partner’ (vs. *ṭamddakkʷelṭ* ‘female friend’).

- *(ṯ)aġyulṯ* ‘female donkey’ (pan-Snh. with some dialectal variants, cf. above), *ṯaġyušṯ* (parts of Zerqet/Bunsar including Tahaya Yzem), *ṯaġyuč* (parts of Seddat/Bunsar) ‘female donkey’.

3) Rhotacism (*l* > *r*)

On rhotacism (*l* > *r*) in Tarifiyt, see Lafkioui 2007a: 69-75. In Senhaja, rhotacism is found only in Mezduy, e.g. *ul* > *ur* ‘heart’, *aġyul* > *aġyur* ‘donkey’. In other Senhaja varieties, there is no regular rhotacism. However, in a few examples in Ketama, *l* is in free variation with *r*, e.g. *al*~*ar* ‘to’ (Allative preposition); *ala*~*ara* ‘past marker’ (probably related to the verb *iy(y)i* < *ili* ‘to be’). In some exceptional cases, Ketama *r* corresponds to *l* elsewhere, e.g. *rkem* ‘to arrive’, cf. Ghomara *lkum* /lkʷem/; *res* ‘to wear clothes’ (homonymous with *res* ‘to land’), cf. Kabyle *les*; *irket* ‘louse’, cf. Zerqet *ṯilk(k)iṯ*.[141]

4) A note on the lexeme **welṯma* ‘sister’

While the original word for ‘sister’ is **welṯma*, besides the expected *wiyṯma*, we also find the following variants in Ketama: *wiṯma, wiyḵma, wiḵma* (Beni Aisi/Beni Hmed), *wi(y)fma* (Sahel). The development probably went like this: **welṯma* > *welḵṯma* > *wiyṯma/wiyḵma/wiyfma*, i.e. *ḵ* must have been inserted between *l* and *ṯ*, and then *l* > *y*, and *ḵ* became replaced by *f* in Sahel.[142] This is not a regular sound change in Ketama.

2.1.7.2. The Fate of **ll*

Long *ll* is preserved Ketama, Hmed, as well as in Taghzut, although a long counterpart of Taghzut *ž (< *l)* in Imperfective verb forms is often the regularized *žž* (cf. Section 2.1.2.2). Usually, long *ll* > *ǧǧ* in Seddat, Bunsar, Zerqet, and Mezduy (with some exceptions), as in Tarifiyt (cf. Lafkioui 2007a: 72-74). However, long *ll* might be preserved in some words, especially in Arabic loans. In a few examples, long *ll* underwent degemination, and is realized as a single *l* in Zerqet. The following table shows examples of *ll*~*ǧǧ* in Senhaja.

[141] For thix lexeme, *l*~*r* is also found in Ghomara (Mourigh 2015): *tilkan* ~ *tirkan*.

[142] We also note a sporadic correspondence of *ḵ* and *f* in the 2MS (DO/IO) fronted clitic in the speech of some speakers in Talghunt.

Examples of **ll* in Senhaja

Ketama/Hmed	Seddat/Bunsar/Zerqet	Translation
llubi(ye)ṯ, llubiya	ğğubiya	beans
llawz, lluz	ğğuz	almonds
ḷḷuẓ	ğğuẓ	to be hungry
azellif	azeğğif (S), aḏeğğif (B), ažžif (Z)	head
amelluy (H)	ameğğuy (B), ameğğul (Z)	white (one)
iḏelli (H)	iḏeğği	yesterday
mellaḥ	meğğaḥ	to salt
lla-n	ğga-n	they are/they were
melleḵ	meğğeḵ	IPF of 'to marry'

In many Arabic loans, *ll* is preserved also in Seddat/Bunsar/Zerqet, e.g. *llil* 'night'; *ddellaḥ* 'watermelon'; *belli* 'that' (complementizer); *bellati* 'slow(ly), later'; *bellaɛ* 'to close'; *ɛellem* 'to teach'; *ɛellaq* 'to hang'; *ẖelleṣ* 'to pay'; *sellem* 'to greet'. Long *ll* is also preserved in Zerqet in the following examples: *ġellel* (cf. Hmed *ġelli*) 'to milk'; *afallaṯ* 'chick' (cf. Seddat *afellus* 'chicken').

2.1.8. Notes on Specific Consonants and Irregular Correspondences

In this section, specific consonants are treated that show inner-Senhaja variation and have irregular correspondences. The fate of the original **l* and **ll* is discussed separately in the following section.

2.1.8.1. Phonemes *p, pp*

The phonemes *p* and *pp* are mainly found in (European) loans, sometimes in free variation with *b* and *bb*, e.g.

p

- *lpastiya* (Snh.) 'pill' (Hmed also *lbaṣṭiya, lḇaṣṭiya*); <Fr. *pastille*;
- *lepḷaya* (Hmed) 'beach'; <Sp. *playa*;
- *lpakiya* (Snh.) 'pack, pile' (cf. Fr. *pack, paquet*);
- *lpaḷa* (Zerqet) 'shovel' (also *lbaḷa*, that is preferred in other varieties <Sp. *pala*);
- *lpinwar* (Snh.) 'bathrobe'; <Fr. *peignoir*;
- *paḵḵa* (Zerqet), cf. Seddat *piḵḵa* 'chameleon'.

pp

- *akeppuḍ* (Zerqet) 'coat', Hmed *akepputṭ*, Ketama/Seddat *akkebbuḍ* < Sp. *capote*;

- *lkappa* (Ketama/Seddat/Hmed/Zerqet) ‘coat/jacket’ < Sp. *capa*;
- *čappa* (Hmed/Zerqet) ‘tin can’ (cf. Spanish *chapa* ‘bottle cap’);
- *ččappu/ššappu* (Hmed/Zerqet) ‘hat’ (<Fr. *chapeau*);
- *ṣṣappa* (Ketama/Seddat/Zerqet/Hmed) ‘hoe’ (cf. Italian *zappa*);
- *ṭuppa* (Zerqet/Seddat) ‘rat’ (from Darija, could be related to Sp. *topo* ‘mole’);
- *čuppa* (Snh.) 1) ‘lollipop’; 2) pacifier (after the Spanish brand name of lollipop *chupa chups*, from the Spanish *chupar* ‘to suck’).

The phoneme *p(p)* is also found in some baby-talk lexemes, e.g. *pappa* ‘bread’, *pipip* ‘car’, etc. (cf. Gutova 2016).

2.1.8.2. Phonemes *b, b̲*

In Taghzut and Hmed, *b* > *b̲*, although a plosive *b* is also found, often in free variation with *b̲*, e.g. *baba* (most Senhaja) ‘father’ > Taghzut/Hmed *b̲ab̲a* (alongside *baba, bab̲a*). In some lexemes, the variant with a fricative *b̲* is preferred, e.g *aneb̲d̲u* ‘summer’ (vs. *a n-ebdu* ‘we will start’). In this case, *b* is always spirantized in the word for ‘summer’ (*aneb̲d̲u*), and may be optionally spirantized in the word for *bd̲u* (~*b̲d̲u*) ‘to start’.
In some examples, we find the correspondence between *b* and *m*, e.g.

- *abḥḥišṯ* (Ketama, informal) ‘kiss’ ~ *amḥḥišṯ* ‘kiss’, cf. *abaḥḥat* ~ *amaḥḥat* ‘id.’, cf. baby-talk *baḥḥa* ~ *maḥḥa* ‘id.’;
- *lǧib* (Zerqet) ~ *lǧim* (Hmed) ‘pocket’.

In some examples, *b* > *f* when followed by a FS suffix *-ṯ* (cf. Section 2.4.1.1 on assimilations):

- Zerqet *ṯažellaf̲ṯ* ‘djellaba (traditional dress)’, cf. PL *ṯižellab̲in*; cf. Hmed *ṯažellab̲ṯ*;
- Ketama *išṭṭef̲ṯ* ‘broom’ < *ašṭṭeb̲* ‘branch’, cf. Zerqet (dialectal) *ṯašṭṭif̲ṯ* alongside *ṯašṭṭib̲ṯ* (dialectal) ‘small branch’ < *ašṭṭib* ‘branch’.

b(b)* and *w(w)

In a few lexemes, there is a correspondence between *b(b)* and *w(w)*:

- Ketama (dialectal) *(ṯ)abkiwṯ* ~ *awkka(t)* ‘worm’, PL *ibkkiwin* ~ *iwkka*.
-

In two words, Hmed *b̲* and *b* correspond to *w* and *g* elsewhere:

- Hmed *seb̲* ‘to drink’ corresponds to *su* /sew/ found in the majority of Senhaja;[143]

[143] Cf. Kossmann 2008b for this highly irregular verb.

- Hmed *ṯibura* ‘doors’ corresponds to Zerqet *ṯiwira*, Bunsar *ṯigura*. The singular form in Hmed is *ṯaggʷur(ṯ)*, cf. Zerqet *ṯawwerṯ*, Bunsar *ṯaggʷerṯ*.

2.1.8.3. Phonemes *č, čč*

The phonemes *č, čč* (that could have also been represented as *tš, ttš*) are rare in Ketama, but are more frequent in other Senhaja varieties.[144] In Ketama, *č* is found e.g. in *aḫčiw* ‘boy’, *aḫčiṯ* ‘girl’, *lčiminiyya* ‘chimney’, *iḫunčar* ‘snot’. Long *čč* is found e.g. in *lečči̱n* ‘oranges’; baby-talk terms *ččuḥ* ‘sleep’ and *čaččaḥ* ‘sit’. Ketama *šš* often corresponds to *čč* in the rest of Senhaja. Compare the following examples:

Ketama	**Most Senhaja**	**Translation**
ššiġ	ččiġ	I ate
išša	ičča	he ate
i̱keššem	i̱keččem	he enters

In the case of the verb ‘to eat’, *šš* is found in Ketama in all verbal aspects, corresponding to *čč* (in all aspects) in the rest of Senhaja. In the case of ‘to enter’, the Aorist stem of the verb is *i̱kšem* in all Senhaja, while the Imperfective stems (derived by geminating the second radical) differ: Ketama has *š* > *šš* while the rest of Senhaja has *š* > *čč* (cf. Section 2.1.2.2). In a few examples, we find a correspondence between *š(š)* and *č(č)* among different Senhaja varieties, and something as free variants within the same variety, e.g.

- *šerreg* (Zerqet) ~ *čerri* (Hmed) ‘to tear’;
- *ššappu* ~ *ččappu* (free variation, Hmed/Zerqet) ‘hat’;
- *ččrawṯ* (Hmed) ‘torn clothes’ vs. singular *ašarweṯ*.

In other words, *č* and *š* are not interchangeable. Outside Ketama, a single *č* is found e.g. in *čuppa* (Hmed/Zerqet) ‘pacifier’; *čenčef* (Hmed) ‘to pull hair’; *aḫenčir* (Hmed) ‘dirty (one)’; *aḫenčuf* (Zerqet) ‘inedible mushroom’. Long *čč* is found e.g. in *ččappa* (Zerqet/Hmed) ‘metal; tin can’; *ččiminiyya* (most Snh.) ‘chimney’; *mečči̱k* (Hmed) ‘small’. In a few words, gemination of *č(č)* is optional, e.g. (Hmed) *č(č)aḇula* ‘hut’. On the Arabic article + *č-* of the stem, see Section 6.3.2.

[144] Note that we transcribe *tš* when the IPF prefix *t-* is followed by *š-* of the verb stem, e.g. *tšellay*, IPF of *šelli* ‘to wash’.

2.1.8.4. Phonemes *ǧ, ǧǧ* and *ž, žž*

The affricate *ǧ* (that could have also been represented as *dž*) is usually long (*ǧǧ*), but a few examples of a single *ǧ* also occur in Senhaja. These are found in Arabic loans and in the word-final position where *ǧ* is underlyingly *ǧǧ*.[145] Sequence of *t*+*ž* is written as *tž* in this study, e.g. the combination of the Imperfective or passive prefix *t(t)-* with *ž-* of the verb stem, e.g. (Zerqet): *tžerray* [džərray], Imperfective of *žerr* 'to pull'; *tžmaɛ* [džmaɛ], passive of *žmaɛ* 'to gather'.

In Seddat, Bunsar, and Zerqet, *ǧǧ* is often a reflex of **ll*, while in the rest of Senhaja, *ll* is normally preserved (cf. Section 2.1.7), e.g. Ketama *lliġ* vs. Seddat/Zerqet *ǧǧiġ* 'I was'. Note that subsequently, *ǧǧ* (< **ll*) can undergo deaffrication, and for some lexemes, variation between *ǧǧ* and *ž* is found, e.g.[146]

- *ǧǧuẓ* ~ *žuẓ* (Zerqet) 'to be hungry' (< **lluẓ*);
- *meǧǧul* ~ *mžul* (Zerqet) 'to be white' (< **mellul*).

There are also examples of free variation between *ǧ(ǧ)* and *ž(ž)* in other contexts (both short and long), e.g. *ǧelǧel* ~ *želžel* (Hmed/Zerqet) 'break/smash/crash'; *rǧu* ~ *ržu* (Hmed) 'to hope'; *sǧeḏ* ~ *sžeḏ* (Hmed) 'to bend to pray'; *weǧǧeḏ* ~ *weššeḏ* (pan-Snh.) 'to prepare'; *seǧǧaɛ* ~ *sežžaɛ* (Hmed) 'to encourage'; *ǧeṛǧeṛ* ~ *žeṛžeṛ* (Hmed/Zerqet) 'to drag'.[147] In the following lexemes, *ž* is the preferred variant in most Senhaja varieties: *sskenžbir* 'ginger'; *ssferžel* 'quince'; *ddenžal* 'eggplant'.

On assimilation of the Arabic article *l-* to the *ž/ǧ* of the noun stem, see Section 6.3.2. Word-finally, *ž* is often preferred over *ǧ(ǧ)* (i.e., deaffrication takes place). For the verb 'to let, leave', the IMP:SG form without clitics is *až(ž)* (while *aǧǧ* is rare), and the form with a following clitic is *aǧǧ*, e.g. *aǧǧ=ay* 'Leave me!'. Cf. also the Perfective form *(u)ǧǧi-ġ* 'I left'. Similarly, we find *lḥaž(ž)* 'hajji' (person who completed the Hajj to Mecca) vs. feminine *lḥaǧǧa*. Note, however, that in the 2MS independent pronoun (*ḵeǧǧi, ḵeǧǧini*), deaffrication does not always take place, and *ḵeǧ(ǧ)* is the preferred variant in most Senhaja (Ketama/Seddat/Bunsar/Hmed), while *ḵež* occurs in Tamadda dialect of Seddat and parts of Zerqet.

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[145] There is also a hypothesis that *ǧǧ* is a geminate in Jbala Arabic (see e.g. Messaoudi 1996). On *ǧ* vs. *ž* in Northern Moroccan Arabic, see e.g. Vicente 2000: 45; Moscoso 2003: 43, and Ziamari & Barontini 2008: 49-50.

[146] On variation between *ǧ(ǧ)* and *ž(ž)*, cf. also Section 2.1.2.2 on consonant length. As mentioned earlier, the verb 'to carpenter' has realizations *nžer* in Zerqet and *nǧer* in Hmed, and *neǧǧer* in the Imperfective in both varieties.

[147] For 'to drag', cf. *ǧeṛǧeṛ* in Ghomara (Mourigh 2015: 25) and *žeṛžeṛ* in Moroccan Arabic (Harrell & Sobelman 1966: 236).

2.1.8.5. Phoneme *g* (vs. *y* and *w*)

As mentioned in Section 1.8.1.1 (isogloss 6 in Kossmann 2017a), there are lexemes that show correspondence of the Senhaja (and Ghomara) *g(g)* to (Central) Tarifiyt/Zenatic *ž(ž)*, and Senhaja (and Ghomara) *k(k)* to Tarifiyt *š(š)*. Contrary to the data reported in Lafkioui 2007a (e.g. maps 35, 61, 65, 68), we have not found the change *š* > *k* or *ž* > *g* in the surveyed dialects and in this case, no variation within Senhaja has been found. However, in some lexemes within Senhaja, we find a correspondence between *g* (~*ḡ*), *y* (~Ø), and *w* (cf. Lafkioui 2007a: 49-56):

- *y* most probably has developed from *g*/*ḡ* as a result of (stage 2) spirantization (found in Hmed, Bunsar, and Zerqet, cf. Section 2.1.4.2), while *g* also occurs in the same varieties. There is a split *g* = *g* and *g* > *y* in parts of Senhaja. Further research is needed to establish if there is any conditioning of this change;
- both *w(w)* and *g(w)* can be reflexes of the original *gg*^{w} (especially in varieties that lack labialized phonemes, but not only in them);[148]
- some correspondences between *g*, *y*, and *w* must be considered irregular.

Consider the following table. Lexemes in group *a* are found with *g* across Senhaja. Lexemes in group *b* are found with *g* in Ketama and Zerqet vs. *y* (~ Ø) in Hmed. There are also examples (group *c*) where both Zerqet and Hmed have *y* vs. *g* in Ketama.

Correspondences of *g* ~ *y* in Senhaja

	Ketama	**Hmed**	**Zerqet**	**Translation**
a)	***g***	***g***	***g***	
	irgi	irgi	irgel	plant sp.
	mezgi̱da	ṯimzgi̱da	ṯimzgi̱da	mosque
	wareg	wareg	wareg	dream
b)	***g***	***y***	***g***	
	gra-	ira-	gra-	between
	afrag	afray	afrag	yard
	agum	ayem	agem	to draw water
c)	***g***	***y***	***y***	
	agelzim	ayelzim	ayelzim	pickaxe
	agenduz	ayenduz	ayenduz	(young) bull
	argaz	aryaz	aryaz	man, husband

[148] In Ghomara, we also find *g* alternating with *w* in some lexemes: there is both interdialectal and intradialectal variation (Mourigh 2015: 34).

The following table lists some lexemes that show correspondence *g(g) ~ w(w)* in addition to *y(y)/Ø* in Hmed. In most of these examples (group *a*, with the exception of 'egg' that shows alternation), Ketama consistently has *g*, while Hmed has *w* (again, with the exception of 'egg', where there are no traces of *g* or *w*). Zerqet shows alternation: *g* is found in most lexemes, while *w* is found in *ṯaṛwa* 'canal' and *ṯamwat* 'cow'. The examples in group *b* have a different historical background. On the verb 'to do' cf. Section 4.5.5.2).[149]

Correspondences of *g ~ w* in Senhaja

	Ketama	**Hmed**	**Zerqet**	**Translation**
a)	agfilṯ/awfilṯ	ṯifilṯ	ṯagfilṯ	egg
	amguḏ	amwuḏ	amguḏ	cedar
	agursay	awersay	agersul	mushroom
	ṯerga	ṯarwa	ṯaṛwa[150]	canal
	amgat	ṯamwat	ṯamwat	cow
b)	awwerṯ	ṯaggʷerṯ	ṯawwerṯ	door
	yan	igʷen	yewwen	one
	ww	yyi	eḡḡ	to do

2.1.8.6. Phonemes *ṯ* and *ḏ*

The phonemes *ṯ* and *ḍ/ḏ* are sometimes interchangeable (even within the same variety), or there are differences depending on the dialect, e.g.

- *akkebbuṯ* (Hmed/Seddat) vs. *akkeppuḏ* (Zerqet) 'coat';
- *ssḍaḥ* ~ *ššṭaḥ* (Snh.) 'roof'; *ṣṣṭel* ~ *ṣṣḏel* (Snh.) 'bucket';
- *lbeğğuṭ*, *lbuḷḷuṭ*, *abelḷuḏ* (all variants found in Bunsar) 'oak tree';
- *ḫiyyeṭ* (Ketama), *ḫiyyeḏ* (Hmed/Zerqet) 'to sew';
- *mšeṭ* (Ketama), *mšeḏ* (Ketama/Hmed) 'to comb'.

Arabic loans may preserve *ṯ*, or *ṯ* may be substituted by *ḍ/ḏ*, e.g.

- *lḫiṭ* (Ketama/Seddat), *lḫiḏ* (Taghzut) 'thread';
- *ḫṭeb* ~ *ḫḏeb* 'to betroth'; cf. *ḫḫuṭuba* ~ *lḫṭaba* ~ *lḫḏaba* (Snh.) 'betrothal';
- *ṭlaq* (Zerqet, Seddat), *ṭlaq/ḍlaq/ḏlaq* (Ketama), *ḏyaq* (Hmed) 'to release'.

[149] As can be deduced from the table, the verb 'to do, to make' has a root consisting of the long *ww* in Ketama, long *yy* in Hmed, and long *ḡḡ* in Zerqet.

[150] The word *ṯaṛwa* in the sense 'canal' is realized with an emphatic *ṛ* in Zerqet (vs. *ṯarwa* 'children').

As mentioned in Section 1.8.2.2, Senhaja *ḍ/ḍ* often corresponds to *ṭ* in Ghomara, e.g. Snh. *aḍar* vs. Ghm. *aṭar* 'foot, leg', Snh. *aḍi(l)* vs. Ghm. *aṭil* 'grapes'. FS nouns whose stems end on *-ḍ,* are realized with a final *-ṭ* as a result of assimilation (see Section 2.4.1.1).

2.1.8.7. Phoneme *h*

As described above (Section 2.1.4.2), in parts of Senhaja (especially in Ketama and Taghzut outside Lqela), *h* can be a reflex of **t.* Other unusual instances of *h* in Senhaja include:

- Initial *h-* in Ketama IMP:SG forms of biradical verbs (cf. Section 4.2.2.2), e.g. *hen(n)* 'say (IMP:SG)!', IMP:PL *nn-aṭ*; *heš(š)* 'Eat (IMP:SG)!', IMP:PL *šš-aṭ*;
- Archaic *h* that is found in (parts of) Senhaja in the word for 'water spring': *ṭahay(y)a* (Seddat/Hmed/Bunsar), *ṭahala* (Zerqet), *ṭahaŕa* (Mezduy); vs. Western Senhaja *ṭayya* (Ketama), *ṭaža* (Taghzut) 'springhouse, well'. [151]
- Arguably (if we accept a semantic shift from 'lion' to 'fox'), archaic *h* is also found in the following lexeme: *awhar* (Ketama, Taghzut), *iwhar* (Zerqet) 'fox'; cf. Tuareg *ahar* 'lion', Tarifiyt *buharu* 'lion; monster' (Kossmann 1999a: 106-107, Kossmann 2001).

2.2. Vowels

2.2.1. Overview

Senhaja (as many, but not all other Berber varieties) has three peripheral vowels (*a, i,* and *u*) and a central vowel (schwa, [ə], spelled here as *e*). Schwa functions differently from the other vowels (see Section 2.2.3). As mentioned above (cf. Section 2.1.3), when any of the vowels is adjacent to a pharyngealized consonant, it is backed and lowered. In some contexts (before back consonants), the differences between the *e* and *a* are neutralized. The following table demonstrates the vocalic system of Senhaja. The vowel *a* is usually realized as [æ], *i* as [ɪ], *u* as [u].

Senhaja vowel system

close	i	u
mid	e	
open	a	

[151] On this word, see Kossmann 1999a: 94.

Vowel *a*

The vowel *a* is a near-open front unrounded vowel (IPA [æ]), e.g. *ṯayya* [θæy:æ] (Ketama), *ṯahaya* [θæhæyæ] (Seddat), *ṯahayya* [θæhæy:æ] (Hmed), *ṯahala* [θæhælæ] (Zerqet) 'water spring'. There are different allophones of /a/ according to its position. Preceding a back consonant or a pharyngealized phoneme, *a* is lowered (realized as [a]). Following a pharyngealized phoneme, *a* is backed and lowered (realized as [ɑ]). It is high in other contexts. For example: *ṯaḏaṭ* [θaðˤɑtˤ] (Taghzut/Hmed/Zerqet) 'finger'; *abeṭṭaw* (Hmed) [æbət:ˤɑw] 'pumpkin'.

Vowel *i*

The vowel *i* is usually realized as [ɪ] or as [i] (depending on the environment). The realization as [i] is usually caused by adjacent alveolar consonants. For example: *iles* [ɪləs] (Zerqet) 'tongue'; *akidar* [ækidær] (Hmed), *ikidar* [ɪkidær] (Ketama) 'horse'. Word-finally, *-i* can be a result of **el* (cf. Section 2.1.7.1), e.g. *aḏfi* (most Snh.) 'snow' < *aḏfel* (Zerqet); *irgi* (Ketama/Hmed) 'sticky plant' < *irgel* (Zerqet). In the vicinity of pharyngealized phonemes, *i* is realized as [e] (close-mid front unrounded vowel), e.g. *lbeṭṭiḥ* [lbət:ˤex] (Snh.) 'melon'; *ašṭṭib* [aʃt:ˤeb] (Zerqet) 'branch'.

Vowel *u*

Vowel /u/ is usually realized as [u], e.g. *rnu* [rnu] 'to add' (Hmed/Zerqet). In the vicinity of back consonants (velars, uvulars, pharyngeals), it is backed and realized as [ʊ], e.g. (Ketama) *aḏuġd* [aðˤʊɣd] 'finger'; *aɛettuq* [ɛʕət:ʊq] 'rooster'. When adjacent to a pharyngealized phoneme, /u/ is realized as [o], e.g. *abuṭ* [abotˤ] (Ketama) 'navel'; *lḫuḏra* [lxoðˤra] (pan-Snh.) 'vegetables'; *lbuḷḷuṭ* [lbol:otˤ] (Taghzut/Bunsar) 'oak'. Word-finally, *-u* can be the realization of the underlying *-ew* (cf. below on the behavior of schwa and semivowels), e.g. *su* /sew/ (most Snh.) 'Drink (SG)!', cf. *š-aˆt-sw-eḏ* 'you (SG) will drink'.

2.2.2. Vowel-Glide Sequence in some Arabic Loans

In a number of Arabic borrowings, there is variation within Senhaja: we find pronunciation with a V-glide sequence, or a single vowel. The distribution is usually dialectal, although some words are found with different pronunciations within the same dialect. Consider the following examples:

1) ***ay ~ i***

- *lġays* (Ketama/Hmed) ~ *lġis* (Zerqet) 'mud'; Ketama/Hmed speakers consider *lġays* a Berber word (Berber pronunciation), and *lġis* an Arabic (Darija) word;

- *lġayṭa* (Ketama) ~ *lġiṭa* (Hmed/Zerqet) ‘flute’: Hmed/Zerqet speakers consider *lġiṭa* Berber and common Moroccan pronunciation, and *lġayṭa* specific to Jbala;
- *ssayf* (Ketama) ~ *ssif* (Hmed/Zerqet) ‘sword’;
- *ṣṣayf* (Ketama) ~ *ṣṣif* (Hmed/Zerqet) ‘summer’.

Note, however, the following words with *i* (rather than *ay*) in Ketama:
- *lḥiṭ* ‘wall’ (alongside *ṣṣuṛ* which is the preferred word in most other varieties);
- *lḥiṭ* ‘thread’ (also in Seddat, cf. Taghzut *lḥiḍ*); spokespeople describe *lḥayṭ* as a dialectal Arabic pronunciation.

2) *aw ~ u*
- *llawn* (Ketama, possible in Zerqet) ~ *llun* (Hmed, possible in Zerqet) ‘color’;
- *llawz* (Ketama/Bunsar) ~ *lluz* (Taghzut/Hmed) ~ *ǧǧuz* (Zerqet) ‘almonds’;
- *nnawba* (Ketama) ~ *nnuba* (Zerqet) ~ *nnuḇa* (Hmed/Bunsar) turn’;
- *ṛṛawẓ* (pan-Snh.) ‘rice’; *ṛṛuẓ* is considered typical of dialectal Arabic;
- *ṣṣawṭ* (Ketama/Hmed/Bunsar/Zerqet) ~ *ṣṣuṭ* (Ketama/Zerqet, as a second variant) ‘voice’; *ṣṣuṭ* is considered dialectal Arabic by Hmed and Bunsar speakers;
- *zzawža* (Ketama) ~ *zzuža* (Hmed) ‘yoke’ (Zerqet *zzwiža*~*žžwiža*).

2.2.3. Schwa

2.2.3.1. Realization

Senhaja has a short central vowel (*schwa*). Schwa has different realizations depending on the phonetic environment. Its usual pronunciation is [ə], and it is written here as *e*, e.g. *k̲šem* [çʃəm] ‘to enter’. It often assimilates to the semivowels *w* and *y*: it is realized as [u] before *w*, and as [i] before *y*, e.g. *duwweš* /dewweš/ [duwːəʃ] (pan-Snh.) ‘to shower’; *ašuwwal* /ašewwal/ [æʃuwːal] (Zerqet) ‘tail’; *guwwez* /gewwez/ [guwːəz] (Ketama/Zerqet) ‘to (make) pass’; *afiyyu* /afiyyu/ [æfiyːu] (Ketama) ‘cork oak’; *asiyyi* /aseyyi/ [æsiyːi] (Ketama) ‘groom’.

Word-finally, *-ew* > *u* and *-ey* > *i* (cf. Section 2.3 on semivowels) e.g.
- *su* /sew/ (most Snh.) ‘Drink! (IMP:SG)’; cf. *š-aˆt-sw-eḏ* ‘you (SG) will drink’;
- *imḏi* (Seddat) ‘grave’ < *imḏey*, cf. Zerqet *imḏel* ‘id.’.

While the speakers have clear intuitions regarding where there is a schwa, in actual speech, schwa can be absent, and sequences of three consonants may be heard, e.g.

ḵešm-en > *ḵšm-en* ‘they entered’. Schwa can be backed in the vicinity of pharyngealized phonemes. It does not merge with *a* in such contexts, e.g. *abeṭṭaw* [abɐtːˁaw] (Hmed) ‘pumpkin’; *lbeṭṭiḫ* [lbətːˁex] (pan-Snh.) ‘melon’; *abeṛṛan* [æbɐrːˁɑn] (Zerqet/Hmed) ‘male partridge’.

In the final syllable, before back consonants (uvulars, pharyngeals, and laryngeals), the difference between schwa and *a* is neutralized in most Senhaja varieties (both are realized as [a]), with the exception of Mezduy, parts of Zerqet (e.g. Wersan, Bunjel, but not Ikherruden), and Taghzut (Lqela). We write *a* rather than the underlying schwa in such cases. Consider the following examples, most of which are valid for the entire Senhaja (except parts of Taghzut and Zerqet):

– ***eq*** > ***aq***: *ḥṛaq* ‘to burn’; *hraq* ‘to spill’; *fṛaq* ‘to separate’; *lsaq* ‘to stick’;
– ***eḫ*** > ***aḫ***: *slaḫ* ‘to skin’; *fsaḫ* ‘to untie’; *wessaḫ* ‘to make dirty’;
– ***eġ*** > ***aġ***: (dialectal) *zḏaġ* ‘to live’; *azaġ* ‘to be dry’; *saġ* ‘to buy’; *naġ* ‘to kill’;[152]
– ***eḥ*** > ***aḥ***: *ftaḥ* ‘to open’; *štaḥ* ‘to dance’; *fṛaḥ* ‘to be happy’; *žraḥ* ‘to injure’;
– ***eɛ*** > ***aɛ***: *ẓraɛ* ‘to sow’; *bellaɛ* ‘to close’; *wsaɛ* ‘to be wide’; *žmaɛ* ‘to gather’;
– ***eh*** > ***ah***: *krah* ‘to hate’; *šbah* ‘to resemble’; *ndah* ‘to call’ (Ketama)/‘to drive’ (Zerqet).

The change *e* > *a* before the back consonants does not take place if it is not in the final syllable:

– ***eq***: *leqlib* ‘plowing’, *meqquṛ* ‘big’;
– ***eḫ***: *leḫmis* ‘Thursday’;
– ***eġ***: *leġlib* ‘winning’; *ṛṛeġʷa* (Hmed/Zerqet) ‘foam’; *ṯiseġʷesṯ* (Hmed/Zerqet) ‘broom’;
– ***eḥ***: *ameḥžuṛ* ‘orphan’, *imeḥḥi* (Ketama) ‘he erases’;
– ***eɛ***: *leɛḏes* ‘lentils’;
– ***eh***: *ifehhem* ‘he explains’, *nehnim* (Ketama) ‘they’, *nehnum* (Hmed) ‘they’.

The difference between the (underlying) *e* and *a* (<*e*) is apparent from morphological variation: underlying schwa is not allowed in an open syllable, and is either elided or changes place (the word is resyllabified). Compare, for example, the following IMP:SG and IMP:PL forms. In IMP:SG, schwa is followed by a back consonant in the final syllable, and is realized as *a*. In IMP:PL, the word is resyllabified, and the underlying schwa is realized as *e*.[153]

[152] Word-final *-ġ* is often weakly realized in Senhaja, and is absent following *a* in Ketama.
[153] Contrast the following example, where there is no *e* > *a* before *h* in the IMP:PL form, because it is not the final syllable: *fhem* ‘understand (SG)!’ vs. *fehm-aṯ* (Western Snh.) ~ *fehm-eṯ* (Eastern Snh.) ‘understand (PL)!’

IMP:SG and IMP:PL forms of verbs with the underlying *e* > *a*

IMP:SG (pan-Snh.)	IMP:PL (West Snh.)	IMP:PL (East Snh.)	Translation
fṛaq	feṛq-aṯ	feṛq-eṯ	separate
wessaḫ	wessḫ-aṯ	wessḫ-eṯ	make dirty
štaḥ	šeṭḥ-aṯ	šeṭḥ-eṯ	dance
wessaɛ	wessɛ-aṯ	wessɛ-eṯ	make wide

If the *a* is underlying, it does not disappear when it stands in an open syllable, as the following examples demonstrate.

IMP:SG	IMP:PL	Translation
rtaḥ	rtaḥ-u / rtaḥ-aṯ / rtaḥ-eṯ	Take rest!
arwaḥ	arwaḥ-u / arwaḥ-aṯ / arwaḥ-eṯ	Come!

In some cases, there are no contrasting forms to verify if the vowel is underlyingly an /a/ or a schwa, e.g. *naɛnaɛ* 'mint'; *lemlaḥ* 'salt'; *ṣṣbaḥ* 'morning'; *ṛṛeẓẓaq* 'property'; *derwaḥ* (Ketama, dialectal) 'now', *nnaġ* 'our' (Ketama *nna*, final *-aġ* > *-a*). On the issue of 1S verbal subject marker (*eġ* > *aġ* > Ketama *-a*), see Section 3.4.1.2.

2.2.3.2. Analysis and Syllabification Rules

The behavior of schwa in Berber has been the subject of many studies.[154] Different analyses have been proposed for different Berber varieties (e.g. Kossmann 1997b for Figuig, Dell & Elmedlaoui 1985 for Tashelhiyt), and especially Tashelhiyt seems to work differently from other varieties (Kossmann 1995a). In Senhaja (and elsewhere), the presence and position of schwa in a word can to a large degree be predicted by means of an insertion rule. Schwa is generally inserted from right to left between two consonants, schematically: (C)CC > (C)CeC ('structure-based syllabification' in Kossmann 2012a). As mentioned above, schwa cannot occur in open syllables. Another constraint is that a long consonant cannot be be broken up by schwa. Below are some examples illustrating syllabification in Zerqet. The same syllabification rules apply in the rest of Senhaja.

[154] See e.g. Bader 1985; Dell & Tangi 1992; Saïb 1994; Kossmann 1995a; 1999a; 2012a: 28-34; Fougeron & Ridouane 2008; Ridouane 2008 and 2013; Ridouane & Fougeron 2011; Ridouane, Hermes & Hallé 2014; Bensoukas & Boudlal 2012; Bensoukas 2013.

Schwa insertion (structure-based syllabification) in Zerqet

Without schwa	With schwa	Translation
k̲s	k̲es	Herd! (IMP:SG)
k̲šm	k̲šem	Enter! (IMP:SG)
tk̲šm	t̲ek̲šem	She entered
ssk̲šm	ssek̲šem	Make enter! (IMP:SG)
t̲ssk̲šm	t̲essek̲šem	She made enter

When due to the addition of affixes or clitics, schwa comes to stand in an open syllable, schwa is elided or the word is resyllabified (i.e., the schwa takes another position). Consider the following examples contrasting with the examples provided above.

Resyllabification in Zerqet

Without schwa	With schwa	Translation
k̲sas	ks = as	Herd for him/her! (IMP:SG)
k̲šmid	k̲ešm = id	Enter here! (IMP:SG)
t̲k̲šmd	t̲k̲ešm = id	She entered here
tk̲šmm[155]	t̲k̲ešmem	You (PL) entered
ssk̲šmn	ssk̲ešmen	They made enter
t̲ssk̲šmm	t̲essk̲ešmem	You (PL) made enter

When schwa in a verbal subject suffix comes to stand in an open syllable (when there is a following V-initial clitic), it changes to *a* in Ketama/Taghzut, and is elided or moves place in the rest of Senhaja (cf. Section 14.3.1.1).

2.2.3.3. Exceptions and Specific Cases

Predictability is not perfect, and there are exceptions from the general rule presented above, especially words ending in CeCC instead of the expected CCeC, e.g.

- *serf* ‘comb!’ (Zerqet) (alongside *sref*, with a predictable schwa);
- *zzenz* (Zerqet) ‘sell!’, vs. Hmed *zznez*; cf. Zerqet passive stem *mmenz* ‘to be sold’;
- *izerf* (Seddat/Bunsar/Zerqet) ‘road, path’, vs. Ketama/Taghzut/Hmed *izref*.

[155] Note that this is not a long *m*, but a single *-m* of the verb stem in combination with the *-m* of 2P suffix. In this case, schwa can separate the two consonants.

Different from Ghomara (Mourigh 2015: 49) and many other northern Berber languages (Kossmann 1995a), there are no cases of unexpected positioning of schwa in the Aorist of CC verbs.

Verbal and nominal suffixes pose a difficulty. Thus, the IMP:PL suffix in Eastern Senhaja is *-eṯ*, e.g. *ḵešm-eṯ* 'Enter!' (this corresponds to *ḵešm-at* in Western Senhaja). This is different from the nominal FS suffix *-ṯ*, which is not syllabified, e.g. *ṯ-azḏem-t* (Zerqet) 'bundle carried on the back'; *aġerḏen-ṯ* (Ketama) 'scorpion'; *(ṯ)ammen-ṯ* (pan-Snh.) 'honey'; *(ṯ)isker-ṯ* (most Snh.) 'garlic'.

Loans from Moroccan Arabic also often present exceptions (cf. Ghomara, Mourigh 2015: 48), e.g. *šširḥ* 'explanation', *nnefs* 'breath', *lwaḥš* 'monster'. Because of the fact that schwa is not always predictable, Saïb 1976a and Kossmann (1995a, 1997b, 2012a) conclude that schwa is sometimes phonemic (inherent), while in the majority of cases, it is predictable (inserted following a set of rules). We follow this approach here. Schwa is always written in this thesis.

2.3. Semivowels /y/ and /w/ vs. Vowels /i/ and /u/

2.3.1. Introduction

In Senhaja, we find sequences of *ye* and *we*. There is a contrast between CyeC# vs. CiC# (e.g. *ġyeḇ* 'to win' vs. *lɛib* 'evil'), and between CweC# vs. CuC# (e.g. *amwer* (Hmed) vs. *amgur* (Zerqet) 'sickle', *rwel* (Zerqet) 'to flee' vs. *aġul* (Zerqet) 'to return'). Below follow examples of *ye* (vs. *i*) and *we* (vs. *u*). There are no examples of *ey* and *ew*, as schwa is pronounced as *i* before *y*, and as *u* before *w*. In word-final position, *-ey* > *i* and *ew* > *u*.

ye

- #yeC...: *yenna* (Hmed) 'sky';
- CyeC#: *byeḏ* (Ketama) 'white'; *ġyeḇ* (Hmed) 'to win'; *hyeḵ* (Ketama/Hmed) 'to be sick'; *myeḵ* (Ketama/Hmed) 'to marry'; *qyeḇ* (Hmed) 'to turn soil, plow';
- VCyeC#: *asyem* (Hmed) 'fish'; *iberyen* (Zerqet) 'barley seeds'; *ṯaryel* (Zerqet) 'ogress'.

i

- #iC...: *imessi* (Ketama) 'fire'; *ibawen* 'beans'; *ifri* (Taghzut) 'cave';
- CiC#: *(i)kiḏ* (Hmed) 'with'; *lɛib* 'evil';
- CCiC#: *abɛir* (Ketama) 'bull'; *abḥiḥ* 'goat kid'; *agelzim* (Ketama) 'pickaxe';
- VCiC# *iṣġunin* (most Snh.) 'ropes'; *abužiž* (Zerqet) 'stink beetle'; *aḏif* (Hmed/Zerqet) 'bone marrow'; *aḍiž* (Taghzut) 'grape'.

we

- CweC#: *ɛwel* (Hmed) ‘to want’; *ɛwen* (Zerqet) ‘to help’; *rwel* (Zerqet) ‘to flee’; *amwer* (Hmed) ‘sickle’; *lɛweṛ* (Ketama/Bunsar) ‘blind (one)’; *sserweṭ* (Zerqet) ‘to thresh’;

u

- CuC#: *ġul* (Hmed) ‘to return’, *amgur* (Zerqet) ‘sickle’; *abaḵur* (most Snh.) ‘early fig’; *aɛrur* (pan-Snh.) ‘back’; *aṣġun* (pan-Snh.) ‘rope’.

2.3.2. Contexts in which Semivowels and Vowels Interchange

In Senhaja, the semivowels *y* and *w* are distinguished from the high vowels *i* and *u*. At the same time, in certain contexts, *y* may become *i*, and *w* may become *u*, and vice versa.

ye* > *i* and *we* > *u

The sequence *ye* > *i* and *we* > *u* when schwa would come to stand in an open syllable (which is not permitted). The rule *ye* > *i* also concerns *y* < **l*. Consider the following examples.

- **(****le* **>) *ye*>*i***: Hmed *qyeḇ* (IMP:SG) vs. (**qyeḇ-eṭ* >) *qiḇ-eṭ* (IMP:PL) ‘plow!’. PERF 3MS *i-qyeḇ* ‘he plowed’ vs. 1S *qiḇ-aġ* ‘I plowed’, 3P *qiḇ-en* ‘they plowed’;
- ***we* > *u***: pan-Snh. *i-ǧǧwen* ‘he is full’ vs. (**ǧǧwen-en* >) *ǧǧun-en* ‘they are full’.

***-ey*# > *-i*# and *-ew*# > *-u*#**

In word-final position, synchronically, *-ey* and *-ew* do not appear, and only *-i* and *-u* are found, respectively. There are usually no morphological variants where the final semivowels *y* and *w* reappear. There is thus no reason to assume underlying semivowels in the final position. There are some very rare exceptions to this rule, e.g. the verb *su* that can be analyzed as /sew/ underlyingly because the semivowel *w* resurfaces in the contrasting forms, including its causative derivation *ssu* /ssew/ ‘to let drink, to irrigate’:

– *su* /sew/ (IMP:SG) ‘Drink!’, cf. *š-aˆt-esw-eḏ* ‘you (SG) will drink’ (most Snh.);

– *ssu* /ssew/ (IMP:SG) ‘Irrigate!’, cf. *š-aˆt-essw-eḏ* ‘you (SG) will irrigate’ (most Snh.).

Compare also the Ketama verb ‘to do’: IMP:SG *hu*, IMP:PL *ww-aṭ*, AOR 2S *š-aˆt-eww-eḏ* ‘you will do’ (root *ww*), which shows some parallels with *su*. We analyze the IMP:SG as /hew(w)/ underlyingly, which is realized as *hu*. Cf. Section 4.2.2.2 on *h-* in Ketama Imperatives.

Other etymological word-final *-ew* became real *-u*. The following examples illustrate the change **el* > *ey* > *i* (the variants with *-el* are found in Zerqet):

- *aḏfel* (Zerqet) > *aḏfey* > *aḏfi* (most Snh.) 'snow';
- *azzel* (Zerqet) > *azzey* > *azzi* (Hmed) 'to run';
- *ḏiḫel* (Zerqet) > *ḏiḫey* > *ḏiḫi* (Hmed) 'inside'.

See Section 2.4.2.3 on the behavior of *i* and *u* in the vicinity of other vowels.

2.4. Consonant Assimilations and Vocalic Sandhi

Consonant assimilations can occur within the word or across word boundaries. Vocalic sandhi occurs across word boundaries and involves vowel elision, change of a vowel to a semivowel, or *Hiatustilger* (insertion of a semivowel to break up the sequence of two vowels, or *hiatus*). In the transcription in this thesis, consonant assimilations and vocalic sandhi are indicated by means of ˆ, e.g. *š-aˆt-eḵrez* (<*š*+*aḏ*+*ṯ-eḵrez*) (assimilation *ḏ*+*ṯ* > *t*) 'she will plow' (pan-Snh.); *i-nnaˆs* (<*i-nna* + *as*), alongside *i-nna*=*yas* (*Hiatustilger*) 'he told him/her'.

2.4.1. Consonant Assimilations

2.4.1.1. Assimilations in Voice

In Senhaja Berber, as in most Berber varieties, voice assimilation is normally regressive (with the exception of the preverbal ventive clitic *d*).[156] A voiceless consonant followed by a voiced one becomes voiced. When assimilation is complete, it results in a voiced geminate. Gemination is neutralized word-finally, but the voice assimilation still applies. If, on the contrary, a voiced consonant is followed by a voiceless one, it becomes voiceless. If assimilation is complete, it results in a voiceless geminate (that may be neutralized word-finally). Sometimes, a long consonant may undergo degemination not in the word-final position. This is often the case across morpheme boundaries. The morphophonology of the verbal complex is discussed in Chapter 14. Below, we present some examples (with cross-references).

Consonants that normally undergo assimilation are alveolar stops and post-alveolar fricatives. Other consonants may undergo assimilation, but not as regularly. Assimilation is not always obligatory, and there are dialectal differences.

[156] On the ventive clitic, see Section 5.3.3. On assimilations to the ventive, see Section 14.3.

A. Voiceless + Voiced > Voiced

There are many examples of regressive voice assimilation, where a voiced consonant makes the preceding voiceless consonant voiced.

t* + *d* > *dd

For example, the Imperfective prefix *t-* + *d-* of the verb stem yields *dd* in most Senhaja varieties excluding Hmed (see Section 14.1.1.2), e.g.[157]

- *t+duwwaḫ* > *dˆduwwaḫ* (most Snh.), Imperfective of *duwwaḫ* 'to make dizzy'.

Similarly, the verb subject prefix *t-* of 2S/3FS/2P *t-* + *d-* of the verb stem also yields *dd* in most Senhaja (see Section 14.1.1.2), e.g.[158]

(1) *š-a ˆt-duwwaḫ* > *š-aˆdˆduwwaḫ* 'she will make dizzy'.
FT-NR ˆ3FS-make.dizzy:A

ṯ* + *ḏ* > *dd/ḏḏ

For example, the noun *ṯaḏeggʷaṯ* 'evening' (Hmed/Zerqet) forms the annexed state (EA, Section 6.1.1.3) by deleting the prefix vowel *a*: *ṯḏeggʷaṯ*, which is realized as *ddeggʷaṯ* (Z)/ *ḏḏeggʷaṯ* (H).[159]

There are also many examples where the assimilation in voice does not take place, especially across word boundaries.

B. Voiced + Voiceless > Voiceless

Very frequently, a voiced consonant becomes voiceless when followed by a voiceless consonant. Examples include:

ḏ* + *ṯ* > *tt

1) The predicative *ḏ* + the nominal FS prefix *ṯ-* > *tt* (H/Z)

[157] In Hmed, the Imperfective prefix is realized as *ṯ-*, which does not undergo assimilation, e.g. *ṯ+duwwaḫ* > *ṯ-duwwaḫ*, Imperfective of *duwwaḫ* 'to make dizzy'. In Taghzut, both variants (as in Ketama and as in Hmed) are found.

[158] The subject prefix of 2S/3FS/2P is realized as *t-* following the irrealis marker *a* (originally *aḏ*) and is itself a result of assimilation from *aḏ* + *ṯ-* > *aˆt-*, see Section 14.1.2.1.

[159] Ketama lacks the FS prefix *ṯ*, e.g. *adeggaṯ* 'evening', annexed state *deggaṯ* 'of the evening'.

On the predicative *ḏ* that exists in most Senhaja, but not in Ketama, see Section 6.1.2. The predicative *ḏ* assimilates to the following *ṯ-* of FS nouns, yielding *tt*, e.g.[160]

(2) *ḏ* + *ṯamġarṯ* > *tˆtamġarṯ* (H/Z) 'It is a woman.'
PRED + woman:FS:EL

2) The final *-ḏ* of a preposition, conjunction + the nominal FS prefix *ṯ-* > *t* (H/Z)

Prepositions and conjunctions ending in *-ḏ* assimilate to the following nominal FS prefix *ṯ-*, yielding *tt* (Hmed/Zerqet), e.g.

(3) *(ki)ḏ* + *ṯemġarṯ* > *(ki)tˆtemġarṯ* (H/Z) 'with a woman'
with + woman:EA

In Ketama, *iḏ* is a Dative preposition, homonymous with the conjunction 'and'. The final *ḏ* of *iḏ* assimilates to the following historical *ṯ-* of FS nouns, yielding a short *t*, e.g.[161]

(4) *iḏ* +*ṯemġarṯ* > *itˆemġarṯ* 'and a woman', 'for a woman'.
and/for +woman:EA

ḏ* + *ṯ* > *tt* > *t

1) The irrealis *aḏ* (NR) + the 2S/3FS/2P subject marker *ṯ* > *aˆt*.[162]

(5) *š-aḏ* + *ṯ-ẓer* > *š-aˆt-ẓer* (pan-Snh.) 'she will see'
FT-NR + 3FS-see:A

2) 2S subject suffix *-ḏ* + 3S:DO clitic (*ṯ, t*) > *t*

When the verb subject suffix *-ḏ* is followed by a 3MS:DO clitic *ṯ* or a 3FS:DO clitic *t*, this yields *t* in most Senhaja (and the DO clitics merge), cf. Section 14.3.1.3, e.g.[163]

[160] The underlying form of the particle is visible in combination with a MS noun, e.g. *ḏ aryaz* (H/Z) 'It is a man.'

[161] The original initial *ṯ-* of FS nouns is visible in the assimilated form, while otherwise FS nouns normally lack the prefix *ṯ-* (see above, Section 2.1.4.2, stage 2 spirantization), e.g. *amġarṯ* 'woman', *n emġarṯ* 'of a woman'.

[162] On the irrealis particle *aḏ*, see Section 5.2.1.1. Cf. Section 14.1.2.1 on *aḏ* in the verbal complex.

[163] Again, the situation in Hmed is different, as the 3FS:DO clitic is *ṯ*.

(6) *ṯ-ufi-ḏ* + *ṯ* > *ṯ-ufi-tˆt* > *ṯ-ufiˆt* (Z) ‘You (SG) found him.’
2-find:P-2S + 3MS:DO

ġ > ḫ before voiceless consonants

This includes the assimilation of 1S subject marker *-ġ* to the third person DO clitic pronouns in Ketama and Zerqet, but not in Hmed (cf. Section 14.3.1.2), e.g.[164]

(7) *ẓri-ġ+ṯen* > *ẓri-ḫˆṯen* (K/Z) ‘I saw them.’
see:P-1S+3P:DO

Compare also the assimilation of the 1P:IO clitic pronoun *(a)naġ* to the following third person DO clitic pronouns in Ketama and Zerqet (cf. Section 14.2.2.2), e.g.[165]

(8) *i-wfa* =*naġ* +*ṯen* > *i-wfa=naḫˆṯen* (K/Z) ‘He found them for us.’
3MS-find:P =1P:IO +3P:DO

The 1S subject marker *-ġ* is not devoiced across word boundaries.

Various consonants

Various voiced consonants of the noun stem assimilate to the FS suffix *-ṯ*. This assimilation is not without exceptions, and there are dialectal differences (see below under *a*). Assimilation can be incomplete or complete (see under *b*). When assimilation is complete, the final consonant can be analyzed as underlyingly long, although gemination is not audible word-finally. For the assimilation of pharyngealized consonants to the FS *-ṯ*, see under *c*. On the combination of the final *-l* of the noun stem with the FS suffix *-ṯ*, see Section 2.1.7.1.[166]

a) Incomplete assimilation

b* + *ṯ* > *fˆṯ*: *(ṯ)ažellab-ṯ* > *(ṯ)ažellaf-ṯ (K/Z) ‘jellaba (dress)’; cf. PL *(ṯ)ižellabin*;[167]

[164] In Ketama, the initial consonant of the third person DO pronoun can in turn completely assimilate to the preceding *ḫ* (*ḫ+ṯ* > *ḫˆḫ*).
[165] Again, this assimilation does not take place in Hmed, and again, in Ketama, the initial consonant of the third person DO pronoun can assimilate to the preceding *ḫ*.
[166] This combination yields different results in different Senhaja varieties: *-lṯ* in parts of Zerqet and also in some words in the varieties where *l* normally undergoes changes; *-šṯ* in parts of Zerqet and Bunsar, and *tš* in parts of Seddat and Bunsar, e.g. *ṯagezzalṯ* > *ṯagezzašṯ* > *ṯagezzatš* ‘kidney’.
[167] In Hmed, where *b* >*ḇ*, there is no assimilation: *ṯ-ažellaḇ-ṯ* ‘id.’.

ḡ + ***ṯ*** > ***ḵˆṯ:*** *ṯaẓeḡ-ṯ* > *ṯaẓeḵ-ṯ* (Zerqet, dialectal) ‘milk’ (cf. Hmed *ṯaziḡṯ*).
ġ + ***ṯ*** > ***ḫˆṯ:*** *ṯawṛṛaġ-ṯ* (H/Z) > *ṯawṛṛaḫ-ṯ* (H) ‘yellow one (F)’;

b) Complete assimilation

Assimilation can be complete: *ḏ* + *ṯ* > *tt* > *t*, e.g. *amwuḏ* ‘cedar (collective)’ > *ṯamwut* ‘(a single) cedar tree’ (Hmed).[168]

When the final *-ḏ* of the noun stem is followed by the FS suffix *-ṯ*, this results in *ṯ*:

- *ṯayaẓiṯ* (S/Z/M) ‘chicken’, cf. MS *ayaziḏ* ‘rooster’, FP *ṯiyaẓiḏin*;
- *amguṯ* (Ketama) ‘(single) cedar tree’, cf. MS (collective) *amguḏ* ‘cedar’.

2.4.1.2. Sibilants

Sibilants often assimilate to each other, including long-distance assimilation. It is then customary to speak of *sibilant harmony*.

Assimilation to the postverbal negative marker *š/ši/šay*

Sibilants (especially *s*) of the verb stem are often assimilated to the following *š/ši/šay* of the postverbal negation marker (cf. Section 5.2.2 on negation), e.g. in singular prohibitives that lack a suffix. This rule is valid in different Senhaja varieties including Ketama and Zerqet, but assimilation does not take place in Hmed. For example:[169]

(9) *i* *reffes* *ši* > *i reffeš^* *ši* (K)
u *rrfus* *ši* > *u rrfuš^* *ši* (Z)
NEG knead:I NEG
‘Do not knead!’

In Zerqet, the sibilants *z* and *š* likewise assimilate to the following *š*. This assimilation is not obligatory in Ketama. For example:

(10) *u* *ḵ(ḵ)ruz* *ši* > *u ḵ(ḵ)ruš^* *ši* (Z)
NEG plow:I NEG
‘Do not plow!’

[168] Different from Ketama (cf. below), there is no audible pharyngealization in Hmed in this word.
[169] The examples in Ketama and Zerqet differ in that Ketama uses the negator *i* rather than *u* in prohibitives, and that the Imperfective stems are formed differently.

Sibilant harmony

Examples of long-distance assimilation, or sibilant harmony, include:

- *ṯibṣešṯ* > *ṯibšešṯ* (both variants found in Zerqet) 'onion' (cf. K *abṣelṯ*, H *ṯibṣel(ṯ)*);
- *zzwiža* > *žžwiža* (both variants found in Hmed and Zerqet) 'pair/yoke';[170]
- *ẓẓaž* (< *ẓẓalḷ*, as in Hmed) > *žžaž* (Zerqet) 'to pray'.

There is no sibilant harmony in the causative prefix *s(s-)* (Section 3.2.2), except for the lexicalized *zznez* (Hmed)/ *zzenz* (Zerqet) 'to sell'.[171]

2.4.1.3. Assimilation of *n*

The consonant *n* is special and can undergo different assimilations (the assimilation is regressive, as in the examples discussed above). Most notably, the assimilation of *n* affects the verbal subject prefix *n-* (cf. Section 14.1.1.1) and the Genitive preposition *n* (cf. Section 9.2.1.2). In both cases, *n* can assimilate to the following *l, ḷ, r, ṛ*, but does not assimilate to other consonants (including *m, b*). The assimilation may be optional, and the assimilation to *l/ḷ* seems to be more wide-spread than to *r/ṛ*. The Hmed variety often employs both the assimilated and non-assimilated forms, while other varieties usually have certain preferences (sometimes depending on the word). Dialectal differences are found especially when *n* is followed by a long consonant (*ll, ḷḷ*, etc.).

1) 1P verbal subject prefix *n-* + *l, ḷ, r, ṛ*

The 1P verbal subject prefix *n-* can be assimilated to the following consonant of the verb stem.

n* + *l* > *ll*, *n* + *ḷ* > *ḷḷ

When the verbal subject prefix *n-* is followed by the *l-* or *ḷ* of the verb stem, this may optionally yield a long *ll/ḷḷ* (*n*+*l* > *ll*, *n* + *ḷ* > *ḷḷ*) in Hmed (no examples in other Senhaja varieties have been found), e.g.

(11) *n-(e)lsa* ~ *lˆlsa* (H) 'we wore (clothes)'
1P-wear:P

[170] In Hmed, *žžwiža* is used as a name of a gun type, distinguished from *zzuža* 'yoke'. Ketama also has two lexemes, *zzwiža* 'gun type' vs. *zzawža* 'yoke', with no assimilation.

[171] This verb is originally a causative derivation of *nez* 'to be sold', currently expressed by *mmnez/mmenz*, which in turn is originally a passive/middle derivation of the same root *nez*.

The verb *llaġ* (Ketama *lluġ*) ‘to lick’ starts in the long *ll*. The 1P subject prefix *n-* assimilates to *ll* (yielding *ll*). In Hmed, no assimilation takes place:

(12) *š-a* *n-(e)lluġ* > *š-a lˆl(l)uġ* (K)
š-a *n-ellaġ* (H)
FT-NR 1P-lick:A
‘We will lick.’

n* + *r* > *rr*, *n* + *ṛ* > *ṛṛ

When the verbal subject prefix *n-* is followed by the *r-/ṛ* of the verb stem, this may (optionally) result in a long *rr/ṛṛ* in Ketama and Hmed (cf. Section 14.1.1.1). The assimilation does not take place in Zerqet. For example:

(13) *š-a* *n-erfes* (K/H/Z) ~ *š-a rˆrfes* (K/H)
FT-NR 1P-knead:A
‘We will knead.’

2) The Genitive preposition *n*

n* + *l* > *ll

The Genitive preposition *n* undergoes different assimilations (cf. Section 9.2.1.2). When the Genitive *n* is followed by the *l-* of the following noun (Arabic article, or the name proper), this usually yields *ll*, although non-assimilated variants (*n* + *l-*) also occur.[172] In most examples, assimilation takes place in Ketama and Zerqet, while in Hmed, both assimilated and non-assimilated forms are found:
- *n leḫmis* (H) > *lˆleḫmis* (K/H/Z) ‘of Thursday’
- *n Layla* (H) > *lˆLayla* (K/H/Z) ‘of Layla’.

In the following example, however, there is a difference between Zerqet (no assimilation) and Ketama (assimilation), while in Hmed, again, both forms are found:
- *n laymun* (H/Z) > *lˆlaymun* (K/H) ‘of (the) lemon(s)’.

When the following word starts in *ll-*, no assimilation takes place in Zerqet, while assimilation is the preferred variant in Ketama: *n* + *ll* > *ll*. Both variants exist in Hmed:
- *n ellil* (H/Z) > *lˆl(l)il* > *llil* (K/H) ‘of (the) night’.

[172] The variation depends on the dialect, but also on the speaker and sometimes on the word.

n* + *r/ṛ

When the Genitive *n* is followed by *rr, ṛṛ-*, there is normally no assimilation in Ketama and Zerqet, while it is possible in Hmed (*n* + *ṛṛ* > *ṛˆṛṛ* > *ṛˆṛ*):

- *n eṛṛadyu* (K/H/Z) > *ṛˆṛ(r)adyu* > *ṛˆṛadyu* (H) ‘of (the) radio’.

Other cases

When the Genitive *n* is followed by other consonants, no assimilation takes place. When the *n* is followed by *w-* of the noun in the annexed state (EA, Section 6.1.1.3), there is usually no assimilation in Ketama, while assimilation is possible in Hmed and Zerqet, e.g.

- *n waman* (K/H/Z) > *wˆwaman* (H/Z) ‘of the water’;

Before the vowels, the Genitive *n* can be optionally omitted:

(14) *ši n imendi* (H/Z) > *šiˆymendi* (H) / *šiˆmendi* (Z)
some of barley
‘some barley’

3) The final -*n* in the numeral ‘one’

The numeral ‘one’ is *yan* in Ketama, and *un* in Hmed and Zerqet (cf. Section 10.2.1).[173] The final *-n* becomes *-l* when followed by *l-* (usually of the Arabic article), e.g.

- *yan lkursi* > *yalˆlkursi* (K); *un lkursi* > *ulˆlkursi* (H/Z) ‘one chair’.

The final *-n* can be omitted in Ketama and Hmed when followed by the *u*~*w-* of the annexed state of the noun, e.g.[174]

- *yan urba* > *yaˆwrba* (K); *un urḇa* > *uˆwerḇa* (H) ‘one boy’.

2.4.1.4. Other Consonants

r* + *l* > *ll

In the Beni Hmed dialect of Ketama, the preposition ‘to’ is *ar* (however, the variant *al* is also found), e.g. *ar uḫyam* ‘to the house’. When followed by the *l-* of the Arabic article, it is assimilated (and optionally degeminated), e.g. *ar lemḍina* > *a(l)ˆlemḍina* ‘to the town’.

[173] Different from Hmed and Zerqet, in Ketama, the numeral is marked for gender (*yan* is masculine).
[174] This has not been found in Zerqet.

m*+*ṯ* > *nṯ

The *m* can become *n* before *ṯ* and *d*, e.g. *amdakk^{w}ey* ~ *andakk^{w}ey* (H) 'friend'; *ɛamṯ-i* > *ɛant-i* (Z) 'my paternal aunt' (cf. K/H *ɛatt-i* with a full assimilation); *aḫyamṯ* ~ *aḫyanṯ* (K) 'room'.[175]

2.4.2. Vocalic Sandhi

A sequence of two vowels is normally not permitted in Berber (see, however, Section 2.4.2.4). When two vowels come in contact, the following solutions are possible (sometimes, multiple solutions exist for the same example):

1) one of the vowels is elided (vowel elision);
2) a semivowel is inserted between them (*Hiatustilger*);
3) one of the vowels becomes a semivowel (*i* > *y* and *u* > *w*).

2.4.2.1. Vowel Elision

In some situations, when two vowels are adjacent (in the underlying form), one of them is elided. For example, the 3MS Perfective form of the verb 'to give' is *i-kka*. When followed by 3S:IO clitic *as*, the underlying form is *i-kka=as* 'He gave to him/her'. However, one of the two *a*'s is elided, so that the surface form is *i-kkaˆs* (alongside *i-kka=yas* with *Hiatustilger* discussed below).[176] Other examples of vowel elision follow.

a* > *Ø

(15) *i-nna* + *as* > *i-nnaˆs* (K/H/Z)
3MS-say:P + 3S:IO
'He told him/her.'

(16) *i-dda arba nn-es* > *i-ddaˆrba nn-es* (K/H)
3MS-go:P boy:EL of-3S
'His (=her) child went.'

[175] The stem of the last word is *aḫyam* 'house'. The assimilation does not take place in Zerqet *ṯaḫyamt* 'little house'.

[176] There are dialectal preferences. Within Ketama, the variant with *hiatus* (*i-kka=yas*) is only found in Beni Aisi, while the remaining villages prefer vowel elision. In Bunsar and Zerqet, by contrast, the variant with *hiatus* is preferred. Only the variant with the vowel elision is found in Hmed (Tafurnut), as in most Ketama villages.

i* > *Ø

(17) *nekki iḏ urgaz inu > nekkiˆḏ urgaz inu* (K)
I and man:EA of:1S
'My husband and I' ('I and my husband')

2.4.2.2. *Hiatustilger*: Insertion of a Semivowel

Semivowel *y* is inserted between *a + a, a +i, i + a, u + a.*[177] Thus, when *i-kka* 'he gave' is followed by the 3S:IO clitic *as,* the resulting form may be *i-kka=yas* 'He gave to him/her' (alongside *i-kkaˆs* with the vowel elision discussed above).[178] Other examples with the *Hiatustilger* follow.

a* + *a* > *a ya

(18) *i-nna + as > i-nna=yas* (K: Beni Aisi/Zerqet)
3MS-say:P + 3S:IO
'He told him/her.'

(19) *a + arba > a yarba* (pan-Snh.)
oh + boy:EL
'O boy!'

a* + *i* > *a yi

(20) *ġa + insi > ġa yinsi* (K) 'only a hedgehog'
only + hedgehog

i* + *a* > *i ya

(21) *zdi + awwerṭ > zdi yawwerṭ* (K) 'Open the door!'
open:IMP:SG + door:EL

u* + *a* > *u ya

(22) *bnu + aḫyam > bnu yaḫyam* (Z) 'Build a house!'
build:IMP:SG + house:EL

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[177] Semivowel *y* is not inserted between *a* and *u*, or between *i* and *u*: in this case, *u* changes to *w*, see below.

[178] As mentioned above, the variant with the *hiatus* is preferred in Bunsar and Zerqet, while the variant with the vowel elision is preferred in most other Senhaja varieties.

2.4.2.3. Vowel Becomes a Semivowel (*i-* > *y-* and *u* > *w*)

When *i* or *u* appear in the vicinity of a vowel, they mostly turn into semivowels: *i* > *y* and *u* > *w*. Thus, in most Senhaja varieties, the usual form of the 3MS verb subject prefix is *i-*, e.g. *i-ḵšem* 'he entered'. However, the prefix is realized as *y-* when following a vowel (e.g. after the future marker *š-a* in Ketama), e.g.

(23) *š-a* *y-eḵšem* (K) 'he will enter'.
FT-NR 3MS-enter:A

Other examples of vowels *i* and *u* turning into semivowels *y* and *w* follow.

1) *i* > *y*

Following *a* (*a* + *i* > *a y*)

(24) *netta* + *i-ḵrez* > *netta y-eḵrez* 'he plowed' (pan-Snh., T/H *neṭṭa y-eḵrez*)
he + 3MS-plow:P

(25) *arba* + *inu* > *arbaˆynu* 'my child' (pan-Snh., T/H: *arḇaˆynu*).
boy:EL + of:1S

Following *u* (*u* + *i* > *u y*)

(26) *i-bennu* + *iḫyamen* > *i-bennu yḫyamen* (K/Z) 'he builds houses'
3MS-build:I + houses

Following *i* (*i* + *i* > *i y*)

(27) *maši* + *inu* > *mašiˆynu* (pan-Snh.) '(it is) not mine'
NEG + of:1S

2) *u* > *w*

Following *a* (*a* + *u* > *a w*)

(28) *netta* + *u* *ṣafi* > *netta w ṣafi* 'He and that's it' (pan-Snh., T/H *neṭṭa w ṣafi*)
he + and that's.i

Following *i* (*i* + *u* > *i w*)

(29) *i* + *uryaz* *inu* > *iˆweryaz inu* (H/Z) 'for my husband'
for + man:EA of:1S

It is not always that the second vowel in the sequence of two vowels becomes a glide. In the following examples, the first vowel in the sequence undergoes changes – namely, *i* becomes *y* before *a* (*i a > y a*):

(30) *š-a ˆt-sawi + anda ḵunni > š-aˆt-sawyˆanda ḵunni* (K)
FT-NR ˆ3FS-speak:A + like you:PL
'She will speak like you (PL).'

2.4.2.4. Unchanged Sequences of two Vowels

Some sequences of two vowels remain unchanged. This is only found across word boundaries, e.g.

a + i = a i

(31) *i-ttezya ibeɛɛašen* (K) 'He slaughters sheep.'
3MS-slaughter:I sheep

u + a = u a

(32) *bnu aḫyam!* (Z) 'Build a house!'
build:IMP:SG house:EL

u + i = u i

(33) *i-zellu ibeɛɛašen* (Hmed) 'He slaughters sheep.'
3MS-slaughter:I sheep

i + a = i a

(34) *i-benni aḫyam* (K) 'He builds a house.'
3MS-build:I house:EL

2.5. Conclusions

The phonologies of Senhaja and (the local) Arabic are nearly identical. Nevertheless, there are some differences within Senhaja – most notably, in the existence of labialized velars, and in the degree of spirantization. Both features can be taken as isoglosses that distinguish Senhaja varieties, or (parts of) Senhaja from Tarifiyt. The transcription system used here is the one that is commonly found in literature on Berber. Long consonants are doubled, e.g. *bb* [bː]. Pharyngealized (traditionally known as "emphatic") consonants are written with a dot underneath, e.g. *ṭ* [tˤ]. Underscore indicates that the consonant is spirantized, e.g. *t̲* [θ], *d̲* [ð], *ḍ̲* [ðˤ]. The phoneme [ɣ] is written as *ġ*, and [ʕ] as *ɛ*, and [x] as *ḫ*. There are three peripheral vowels (*a, i, u*) and a central vowel, schwa [ə], written as *e*. The symbol ˆ indicates assimilation and elision.

Consonants

Consonants across Berber varieties can be distinguished by voice, length, and pharyngealization. Pairs of short and long consonants are established in morphological oppositions, although in addition to length, other features can play a role. Short spirantized consonants correspond to long plosives, e.g. *ṯ – tt, ḏ – dd*, etc. As in other Berber varieties, we find the short/long pairs *ḍ/ḏ – ṭṭ*, *ġ – qq*, and *w – gg*^{w}. For the last pair, *w – gg*^{w}, we also find *w – gg* and *w – ww*, in varieties lacking labialized velars (Ketama, Taghzut). In Zerqet, a short sibilant corresponds to an affricate long consonant: *s – tts*, *ṣ – ṭṭṣ*, *z – ddz*, *š – čč*, and *ž – ǧǧ*. The correspondence *š – čč* is also found in Seddat, Hmed, and Taghzut. The original **l – *ll* pair has developed into different correspondences (cf. below): *y – ll* (Ketama/Hmed), *ž – žž* (Taghzut), *y – ǧǧ* (Seddat/Bunsar), *l – ǧǧ* (Zerqet).

There are pharyngealized dentals and alveolars, some of which developed under the influence from Arabic. They have non-pharyngealized counterparts (e.g. *ṭ – t*). Pharyngealization is not always strongly pronounced in all words, and there are examples of depharyngealization. There are also lexemes that have developed pharyngealized phonemes (often as a result of the pharyngealization spread).

All Senhaja varieties underwent spirantization, which turned short stops into fricatives, e.g. *t* > *ṯ*, *d* > *ḏ*, *k* > *ḵ*. In most varieties, *b* is left unaffected, while in some varieties (Taghzut, Hmed, Bunsar, parts of Zerqet), *b* > *ḇ*. Similarly, in most varieties, *g* is left unaffected, while some varieties (e.g. in parts of Zerqet and Seddat), *g* > *ḡ*. In some varieties, spirantized consonants have developed further into different sounds (stage 2 spirantization) or into a "zero": *g* > *ḡ* > *y* (> Ø); *t* > *ṯ* > *h* (> Ø). The consonant *g/ḡ* has merged with *y* in some words in Eastern Senhaja (Hmed, Bunsar, Zerqet, Mezduy).

In Ketama and parts of Taghzut (outside Lqela), *ṯ* > *h* (> Ø) in specific contexts. This affected the 2S/3FS/2P verb subject prefix (*ṯ-* > *h-/a-/ah-*, but not "zero"), and the feminine nominal prefix (*ṯ* > Ø). The Lqela dialect of Taghzut is conservative in preserving *ṯ*.

Spirantization is often optional in many lexemes, e.g. *kšem*~*ḵšem* 'to enter', but there are also lexemes that prefer only one variant, either spirantized or not spirantized. Non-spirantized stops often originated from long consonants or borrowings. There can be also dialectal differences in spirantization. Generally, Ketama (especially the dialect of Sahel) is less spirantizing than the Hmed variety. Spirantization may be blocked in some cases, e.g. by the preceding *n* in Zerqet (but not in Ketama or Hmed). On the whole, spirantization in Senhaja is not as regular as in Tarifiyt, and does not follow the same rules as Ghomara (Mourigh 2017).

Assibilated *ṯ* [t͡s] is limited to Taghzut, Hmed, and parts of Seddat. The exact conditioning of assibilation in these varieties differs. For example, the passive prefix *tt-* can be (optionally) assibilated in Taghzut, but not in Hmed.

Labialized velars and uvulars exist in most Senhaja varieties, but are absent in Ketama and Taghzut. The existence of short labialized velars is an isogloss that distinguishes (parts of) Senhaja (excluding Ketama and Taghzut) from Tarifiyt/Zenatic (Kossmann 2017a: 97). Differently from Ghomara (Mourigh 2015: 59), the schwa adjacent to the labialized phoneme is not always realized as *u* in Senhaja. In some lexemes, labialization has been lost, and its traces are only visible in the vowel *u*. This is especially frequent in Ketama, but can be also found in varieties that preserve labialized velars. In Ketama, traces of lost labialization are sometimes visible in the "unstable" *u* that corresponds to *e* in other Senhaja varieties and that disappears when the vowel occurs in an open syllable, e.g. *suġ* 'buy! (SG)' vs. *sġ-aṯ* 'buy (PL)!'. The labialized phonemes in Senhaja are: *ḵ(ḵ)ʷ, k(k)ʷ, ġʷ, g(g)ʷ*. The phoneme *ggʷ* is the most frequent labialized phoneme in our database, largely because *ggʷ* is a long counterpart of *w* found in morphological oppositions. A single *gʷ*, by contrast, is rare, and has only been found in Hmed.

The original **l* became *y* (sometimes *yy)* in most Senhaja varieties (Ketama/Seddat/ Hmed, parts of Bunsar), *ž(ž)* in Taghzut, and is preserved in Zerqet. Rhotacism (*l* > *r*), as in Tarifiyt, is regularly found only in Mezduy. In Ketama, in a few examples, *l* is in free variation with *r*, and in a few exceptional cases, *l* > *r*. Word-final *-el* and *-il* became *-i* in varieties where *l* > *y* (i.e. *-iy* > *-i*). The long **ll* is preserved in Ketama, Hmed, as well as in Taghzut (although a long counterpart of Taghzut *ž* (< **l*) in morphological oppositions is often the regularized *žž*). Usually, long *ll* > *ǧǧ* in Seddat, Bunsar, Zerqet, and Mezduy (with some exceptions), as in Tarifiyt. There are some exceptions: *l* does not always become *y* in the varieties where this change took place, while *ll* does not always become *ǧǧ* in the varieties where this change took place, especially in Arabic loans. In feminine nouns that have the suffix *-ṯ*, the final *-lṯ* may be preserved, or *l* may undergo the usual changes. The final *-lṯ* changes to *-šṯ* in some dialects of Zerqet, parts of Seddat and Bunsar. In parts of Seddat, Bunsar, and Mezduy, *-lṯ* > *č* [tš].

The phonemes *p* and *pp* are mainly found in (European) loans, sometimes in free variation with *b* and *bb*, and in some baby-talk lexemes. The phonemes *č, čč* are rare in Ketama, but are more frequent in other Senhaja varieties. Ketama *šš* often corresponds to *čč* in the rest of Senhaja, e.g. *iḵeššem* (K) vs. *iḵeččem* (most Snh.) 'he enters'. The affricate *ǧ* is usually long (*ǧǧ*), but a few examples of a single *ǧ* also occur.
Senhaja *ḍ/ḏ* often corresponds to *ṭ* in Ghomara.

Vowels

Senhaja has three peripheral vowels: *a*, usually realized as [æ], *i* [ɪ], and *u* [u], and a central vowel *e* [ə] (schwa). When any of the peripheral vowels is adjacent to a pharyngealized consonant, it is backed and lowered. Schwa is realized as [u] before *w*, and as [i] before *y*. Word-finally, *-ew* > *u* and *-ey* > *i* (including < **-el*).

In the final syllable, before back consonants (uvulars, pharyngeals, and laryngeals), the difference between schwa and *a* is neutralized in most Senhaja varieties (both are realized as [a]), with the exception of Taghzut (Lqela), some dialects of Zerqet, and Mezduy.

In Senhaja (and elsewhere), the presence and position of schwa in a word can usually be predicted by means of an insertion rule. Schwa is generally inserted from right to left between two consonants, schematically: (C)CC > (C)CeC ('structure-based syllabification' in Kossmann 2012a). When due to the addition of affixes or clitics, schwa comes to stand in an open syllable, schwa is elided or the word is resyllabified. There are exceptions from this general rule, e.g. words ending in CeCC instead of the expected CCeC. Loans from Moroccan Arabic also often present exceptions. We conclude, following Saïb 1976a and Kossmann (1995a) that schwa is mostly predictable (inserted following a set of rules), but sometimes phonemic (inherent). There is a contrast between CyeC# vs. CiC#, and between CweC# vs. CuC#.
The semivowels *y* and *w* are distinguished from the high vowels *i* and *u*, but in certain contexts, *y* may become *i*, and *w* may become *u*. Etymological word-final *-ew* became *-u*, and word-final *-ey* became *-i*.

Assimilations and sandhi

Consonant assimilations can occur within a word or across word boundaries. Vocalic sandhi occurs across word boundaries and involves vowel elision, change of a vowel into a glide, or *Hiatustilger* (insertion of a glide to break up the sequence of two vowels, or *hiatus*).

Consonant assimilations are normally regressive (with the exception of the preverbal ventive clitic *d*). Consonants that frequently undergo assimilation are alveolar stops and post-alveolar fricatives. Many assimilations take place in the verbal complex. Assimilations in voice are very common: voiceless + voiced > voiced (e.g. *t* + *d* > *dd*), and voiced + voiceless > voiceless (e.g. *d* + *t* > *tt*, *ġ*+*ṯ* > *ḫ*^*ṯ*). Not all assimilations take place in all dialects. Generally, fewer assimilations are observed in Hmed (especially in the verbal complex) than in Ketama and Zerqet. Sibilants often assimilate to each other, including long-distance assimilation (*sibilant harmony*), e.g.

s+*š* > *šš*. The consonant *n* often assimilates to the following *l* (*n*+*l* > *ll*), and can also assimilate to the following *l̩, r,* and *r̩*, but does not assimilate to other consonants. Assimilation of *n* affects the 1P subject prefix *n-*, the Genitive preposition *n* 'of', and the final *-n* of the numeral 'one', among others.

A sequence of two vowels is normally not permitted in Berber. When two vowels come in contact, the following solutions are possible:

1) one of the vowels is elided (vowel elision), e.g. *a* + *a* > *a*;
2) a semivowel is inserted (*Hiatustilger*), e.g. *a* + *a* > *a ya*;
3) one of the vowels becomes a semivowel, e.g. *a* + *i* > *a y*.

Summary of isoglosses in phonetics/phonology

The following table summarizing the isoglosses in phonetics/phonology within Senhaja. Comparisons with Ghomara (Ghm.) and (Central) Tarifiyt (Rif) are provided.

	Isogloss	**Ketama**	**Hmed**	**Zerqet**	**Notes**
1	Labialized velars	-	+	+	Taghzut: no. Ghm: yes. No short velars in Rif
2	**l – *ll*	*y – ll*	*y – ll*	*l – ǧǧ*	Taghzut *ž – žž*, Seddat/Bunsar *y – ǧǧ*. Ghm. *l – ll*, Mezduy/Rif *r – ǧǧ*
3	*b* > *b̲*	-	+	dialectal	*b* > *b̲* also in Taghzut, Ghm, Rif
4	*g* > *ḡ*	-	-	+	*g* > *ḡ* also in Seddat, Ghm
5	*g*>*ḡ*>*y*(>Ø) (in some cases)	-	+	+	Also found in Rif
6	*t*>*t̲*>*h*(>Ø) (in some cases)	+	rare	-	Also Taghzut (dialectal), Ghm. Rare in Rif
7	Existence of *ṭ*	-	+	-	Also in Taghzut, Seddat (dialectal). Not in Ghm/Rif
8	*s – tts, z – ddz*	-	-	+	Not in Ghm. In parts of Rif
9	*š – čč*	-	+	+	Also in Seddat, Taghzut, Ghm. In parts of Rif

3. The Verb

3.1. Introduction

Characteristic Features

The verb in Senhaja is characterized by the following features:

1) its ability to play the role of a predicate and to constitute a statement by itself (if no complement is necessary) (cf. Section 3.2 on the verbal predicate);
2) its ability to express modifications in voice by means of derivational prefixes (cf. Section 3.3. on verb derivation);
3) its ability to express mood, aspect, and negation (MAN, see Chapter 4). The negation is usually expressed by means of preverbal and postverbal particles, but in some parts of Senhaja (parts of Zerqet, Mezduy) can be expressed in the verb stem as well; defective verbs may lack MA(N) distinctions;
4) its ability to express the subject by means of the affixes: all verbs normally express the person, number, and gender (PNG) of the subject (see Section 3.4 on the PNG marking); the exception is constituted by impersonal verbs (Section 3.4.4);
5) its ability to combine with verbal MAN particles and verbal clitics: the pronominal clitics of the DO and IO, and the deictic clitic *d* (see Chapter 5); the verbal clitics undergo fronting under certain conditions (Chapter 12).

Other parts of speech can also function as predicates, but the verb assumes this function most often. Only the verb expresses the subject by means of the subject PNG marking and expresses voice modifications by means of derivational prefixes. The verbal clitics, however, can be also found with another word class – with the so-called pseudo-verbs (see Section 5.3.4). The pseudo-verbs and verbs have in common the ability to take pronominal clitics (which, however, do not undergo fronting with pseudo-verbs). Different from verbs, pseudo-verbs have no subject PNG marking, and have no aspectual distinctions.

Section 3.3 discusses verb derivation. Formation of MA(N) stems is discussed in Chapter 4 (this chapter excludes MAN particles and auxiliaries, discussed in Chapter 5). Section 3.4 is devoted to the subject PNG marking and presents the exceptions (impersonal verbs). There is some interaction between the subject marking and the MAN stems and particles. The verbal complex (which includes MAN particles and verbal clitics) is discussed in the Chapter 5: verbal particles in Section 5.2, and verbal clitics in Section 5.3. Morphophonology and morphosyntax of the verbal complex is delegated to the final chapters of the thesis (12, 13, and 14).

General Structure

Verbs have abstract roots. There are different classes of verbs according to their root type, such as CCC (triconsonantal), CC (biconsonantal), roots including vowels such as CVC, CCV, and so on.[179] The verbal root typically consists of one to four consonants; three consonants (CCC) is the most frequent type. Many roots are consonantal, while vowels and gemination can be used to convey grammatical information. However, there are also roots that include a vowel, or where consonantal gemination must be specified. Also, the vowel scheme and consonantal gemination are not the only ways to convey grammatical information. In this thesis, the verbal root is analyzed as predominantly consonantal, with the possible inclusion of gemination and plain vowels (excluding the schwa). The root may be extended by a derivational prefix, which adds modifications in voice (Section 3.2).[180] In this thesis (cf. Penchoen 1973: 30), the term "verb derivation" is reserved for derivation that adds modifications in voice, while the term "verb formation" refers to forming of MAN (mood, aspect, negation) stems (Chapter 4).

There is no infinitive form. Aorist is traditionally taken as the citation form in Berber studies, and this practice is followed here. The bare Aorist without the PNG affixes usually coincides with the Imperative singular, which is the only form that is found without PNG affixes.[181] Most verbs distinguish three stems: Aorist, Perfective, and Imperfective. The Mezduy variety and the Wersan dialect of Zerqet are conservative in that they preserve negative stems (Perfective Negative and Imperfective Negative).

PNG markers (prefixes, suffixes, or both) are then added to the stems. These affixes carry information about the person, number, and gender of the subject. For example, for the verb *ḵrez* 'to plow', there is:

- root: KRZ
- bare verb (Aorist stem, citation form, base): *ḵrez*
- extended root: e.g. the passive prefix *t-* + the root KRZ (yielding the passive stem): *ttek̲rez* 'to be plowed';
- MA(N) stem, e.g. *ḵrez* (Aorist = Perfective) vs. *ḵerrez* (Imperfective);
- conjugated form, e.g. *i-ḵerrez* 'he plows' (Imperfective with a 3MS marker).

The complete scheme of the verb is (maximally):

PNG pfx + IPF pfx + derivational pfx + MA(N) stem + PNG sfx

[179] C = Consonant, C: = long consonant, and V = plain vowel (*a, u,* or *i*).

[180] There is also a category of labile verbs that can be used both as intransitives and transitives without a change in morphology.

[181] However, in some cases, the Aorist may differ from the Imperative (cf. Section 4.2.2).

For example:

(1) *ṯ-ḵerz-eḏ* (most Snh.)
2S-plow:P-2S
'You (SG) plowed.'

(2) *i-ṯ-ett-eḵraz* (H)
3MS-IPF-PASS-plow:I
'It is plowed.'

3.2. The Verbal Predicate

3.2.1. Introduction

The verb phrase (VP) often functions as a predicate. See Section 5.6 on the negation of the verbal predicate. When the verb is intransitive, the Subject is the only argument of the VP. When the verb is transitive, there are two arguments: the Subject and the Object. Additionally, some verbs take oblique arguments that include: the IO, the prepositional argument, and secondary predicates.[182]

The verb in Berber always agrees with the subject in gender and number by means of PNG affixes (cf. Section 3.4, with the exception of impersonal verbs). The subject does not have to be lexically expressed, and the entire VP (and a sentence) can consist of a single verb, e.g.

(3) *i-ḵšem* (pan-Snh.)
3MS-enter:P
'He entered.'

When the subject is expressed lexically, it can precede or follow the verb. The preverbal position is generally regarded as topicalized (cf. Galand 1964, Lafkioui 2010a, 2011c, 2014, 2017b).[183] In most Berber languages that have a distinction in noun state, the subject is marked differently in the preverbal position and in the postverbal position. This is not the case in Senhaja, where the same form of the noun is used for subjects in either position – the *free state* (glossed EL, cf. Section 6.1.1.3).

[182] The definitions of S(ubject), A(gent) and O(bject) (after Dixon 1994) are: S is a participant in an intransitive construction; A is an active participant in a transitive structure; O is only possible in a transitive clause, where it fulfills the role of a Patient or Undergoer.

[183] The subject in the preverbal position is analyzed as *indicateur de thème* by Galand (1964). In the postverbal position, it is analyzed as the *complément explicatif*. In other words, in this analysis, there are no lexical subjects in Berber, since the real subject is expressed in the PNG affixes on the verb. Cf. also Mettouchi 2007 on the problem of the subject in Berber.

This feature is shared by Senhaja with Ghomara, cf. Mourigh 2015: 300. For example:

(4) *i-dda* *argaz* =*aḏ* (K)
3MS-go:P man:EL =PROX:MS
'This man went away'.

(5) *argaz*=*aḏ* *i-dda* (K)
man:EL=PROX:MS 3MS-go:P
'This man went away'.

When two nouns in singular are coordinated with the conjunction 'and', the verb form can be singular or plural (when preceding the subject), e.g.

(6) (a) *i-dda* *argaz* *itˆ* *emġarṯ* *nn-es* (K)
3MS-go:P man:EL and woman:EA of-3S
(b) *dda-n* *argaz* *itˆ* *emġarṯ* *nn-es* (K)
go:P-3P man:EL and woman:EA of-3S
'The man and his wife went.'

When the verb follows the subject expressed by two nouns coordinated with 'and', the verb form is plural:

(7) (a) *argaz* *itˆ* *emġarṯ* *nn-es* *dda-n* (K)
man:EL and woman:EA of-3S go:P-3P
'The man and his wife went.'
(b) *argaz* *itˆ* *emġarṯ* *nn-es* **i-dda* (K)
man:EL and woman:EA of-3S 3MS-go:P
Intended: 'The man and his wife went.'

3.2.2. Direct Object

Transitive (and ditransitive) verbs can have a direct object (DO). The DO can be expressed by a noun or a pronoun (a DO pronominal clitic), and usually follows the verb, e.g.[184]

[184] In marked contexts (non-real, negation), verbal clitics (DO, IO, and ventive) are placed before the verb. This is discussed in Chapter 12.

(8) *i-ẓṛa* *inisi* (S/H/B/Z/M)
3MS-see:P hedgehog
'He saw a hedgehog.'
(9) *i-ẓṛa* =*ṯ* (pan-Snh.)
3MS-see:P =3MS:DO
'He saw him.'

When topicalized, the lexical DO precedes the verb. In such contexts, the verb obligatorily has a DO pronominal clitic (coreferential with the lexical DO), e.g.

(10) *inisi,* *i-ẓṛa* =*ṯ* (H)
hedgehog 3MS-see:P =3MS:DO
'(As for) the hedgehog, he saw him.'

3.2.3. Indirect Object

The indirect object (IO) usually expresses the recipient, but may have other functions, too. If the IO is expressed by a noun, it follows the Dative preposition *i/g* (and variants) 'to', 'for' (cf. Section 9.2.2.3). The lexical IO can co-occur with an IO clitic pronoun. This phenomenon is known as *clitic doubling* (i.e. doubling by means of a clitic) or *double reference* (cf. Souag 2015a; see Section 5.3.2.4). Depending on the verb, double reference may be the preferred variant, e.g. with the verbs 'to say' and 'to give':

(11) *i-nna* =*(ya)s* *i* *ḥmeḏ* (K/T/H/Z)
3MS-say:P =3S:IO DAT Ahmed
'He told Ahmed.'
(12) *i-kka* =*(ya)s* *aġrum* *i* *ḥmeḏ* (K/T/Z)
3MS-give:P=3S:IO bread:EL DAT Ahmed
'He gave the bread to Ahmed.'

If the two objects are expressed by nouns, their order may vary, but the order DO + IO is more common:

DO + IO (more common)
(13) *i-kka* =*(ya)s* *aġrum* *iḏ* *urba* (K/T)
3MS-give:P=3S:IO bread:EL DAT boy:EA
'He gave the bread to the boy.'

IO + DO (less common)

(14) *i-kka* *=(yas)* *iḏ* *urba* *aġrum* (K/T)
3MS-give:P = 3S:IO DAT boy:EA bread:EL
'He gave the bread to the boy.' ('He gave the boy bread.')

If the two objects are expressed by pronominal clitics, the order is IO + DO.[185] Besides expressing the recipient, the IO can also express the benefactive or malefactive (cf. Rapold 2010), e.g.

(15) *i-ḥeṛq* *=as* *aḫyam* *i* *muḥemmeḏ* (K/T)
3MS-burn:P = 3S:IO house:EL for Mohammed
'He burnt the house to Mohammed's detriment.'[186] (malefactive)

(16) *i-swa* *=(ya)s* *=t* (K)
3MS-drink:P =3S:IO =3S:DO
'He drank it to his detriment.' (malefactive)

3.2.4. Prepositional argument

The following sentence has a prepositional argument:

(17) (a) *i-ndah* *af* *gma-s* (K)
3MS-call:P on brother-3S
(b) *i-ɛiyyeḏ* *ḫ* *ušqiq* *nn-es* (H/Z)
3MS-call:P on brother:EA of-3S
'He called his brother.'

[185] When fronted, the relative order of the clitics remains in the same in most Senhaja varieties. In Ketama, however, the IO + DO clitic complex is usually split, so that only the IO is fronted, while the DO is left postposed (Section 13.2).

[186] The sentence can also be understood as: 'Mohammed's house burnt to his detriment', 'The house burnt to Mohammed's detriment.', with 'the house' as the Subject.

3.3. Verb Derivation

3.3.1. Introduction

3.3.1.1. Overview of Derivations

There are several derivations in Senhaja that express modifications in voice, or *diathesis*.[187] First, there are two valency-increasing mechanisms that derive causatives. Causatives can be defined as verbs which refer to a causative situation, i.e. to a causal relation between two events, one of which is considered by the speaker to be caused by another (Kulikov 2001: 886).[188] Causatives can be derived by means of a prefix that starts in a sibilant (*s-*), which is a common way to derive causatives in Berber. The second type of causatives have a long second radical. This is usually found only with Arabic borrowed verbs (with a few exceptions). In this case, most likely, both the base and the derived verb were borrowed. The verbs with a long second radical are known as stem II verbs in Arabic linguistic tradition, and this term is adopted here. For native Berber verbs, the corresponding stem II causatives are suppletive.[189]

There are several valency-decreasing mechanisms that derive passives and, sometimes, middles or medio-passives.[190] Passives are normally derived with prefixes. There are several prefixes starting in a dental: *t(t)-* (that is common to all Senhaja varieties) and the dialect-specific *ttya-* (Ketama), *ṭṭya-* (Taghzut), *ttuya-* (Seddat/Bunsar), *ṭṭuya-* (Hmed), and *ttwa-* (Zerqet/Mezduy). Then, there is a prefix with a nasal *n(n)-*. While *n-* in most Berber varieties is a conditioned variant of the middle/medio-passive prefix *m-*, this is not the case in Senhaja, where *n-* usually expresses the passive, and is much more frequent than *m-*. Indeed, in Senhaja, the prefix *m-* is very marginal, limited to a few examples. As with causatives, some passives are suppletive. In this case, the passive consists of the Arabic borrowed stem, which is suppletive to the Berber native verb, and the passive prefixes *t-* or *n-*, which are found both in Senhaja and Arabic.

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[187] On diathesis, see Kulikov 2011: 369. Diathesis is the way of mapping semantic arguments (roles) onto syntactic functions (grammatical relations). Active is typically considered as a basic (neutral, non-derived) diathesis. A change in verb valency and syntactic patterns can be described as "diathesis modification". In many cases, voice is not just the reassignment of syntactic roles.

[188] On causatives and their definition, see Comrie 1976; 1985; Comrie & Polinsky 1993; Haspelmath 1993; Kulikov 2001; 2011; Shibatani 1976; and Shibatani & Pardeshi 2002.

[189] See Section 3.3.8.1 for the numbers and percentages of different kinds of causatives in Senhaja.

[190] The middle is sometimes described as the semantic domain extending between reflexives and passives. Middles express an event caused by an internal agent, while medio-passives express an event caused by an external agent which is, however, not relevant. On the cross-linguistic study of the middle, see Kemmer 1993. See Haspelmath 2003 for a semantic map for reflexive and middle functions.

In this case, the entire suppletive passive is borrowed, rather than derived within Senhaja. Exceptionally, the suppletive stem can take the native prefix *ttya-* (Ketama) or *ttwa-* (Zerqet). In this case, the derivation combines the native Berber prefix with a borrowed stem. See Section 3.3.8.2 on the numbers and percentages of different kinds of passives in Senhaja.

Derivational prefixes are also found in other Berber varieties, usually the causative *s-*, the passive *t-* (and variants), and the middle *m-* (~*n-*).[191] Senhaja is different from most other Berber varieties in its widespread use of borrowed Arabic stem II causatives (that are often suppletive to the Berber underived verbs) and suppletive passives. However, it is similar to Ghomara in this respect (Mourigh 2015).[192] To sum up, the following major types of voice modification are found in Senhaja:

1) valency-increasing mechanisms (causatives):
   a) derivation with the prefix *s(s)-*;
   b) stem II (C2 geminated) causatives (usually Arabic loans):
      - cognate to the base verbs:
        - directly borrowed from Arabic (majority);
        - derived from native Berber verbs (exceptions).
      - suppletive.
2) valency-decreasing mechanisms (passives and middles/medio-passives):
   a) derivation with the prefixes *t(t)-* (common); *ttya-, ṭṭuya-, ttwa-* (dialectal);
   b) derivation with the prefix *n(n)-*, exceptionally with *m(m)-*;
   c) suppletive Arabic passives (with the passive prefixes).

Some verbs allow for multiple causative or passive counterparts (cf. Section 3.3.8). For example, in certain varieties, some stem II verbs are used interchangeably with *s-* derived verbs, e.g.

Verb	**Transl.**	**Stem II**	***s*-derived**	**Translation**	**Variety**
mḍi	be sharp	meḍḍi/a	ssemḍi/a	make sharp	K/T/H/B/Z
ḥfa, ḥfu, ḥfi	be blunt	ḥeffi/a	sseḥfi/a	make blunt	(K)/H/B/Z

[191] On derivation in Berber, see Chaker 1973; 1995: 1; Galand 1964; 2002: 323-329; 2010; Cadi 1981, 1987, 2005; Mettouchi 2004; Taine-Cheikh 2005; Kossmann 2012a. See Taine-Cheikh 2008 on the causative prefix *s-* in Berber, and Taine-Cheikh 2003b on the prefix *s-* in Hassaniyya. On the middle voice in Berber and Arabic, see Taine-Cheikh 2007a.

[192] On suppletion in Berber, see Kossmann 2013a: 243 and 414 (discussing the Ghomara data). See Brugnatelli 2011a for a survey of suppletion in nouns and verbs in Eastern Berber.

In other varieties, one finds only *s*-derived or stem II causative of these verbs. For example, in Taghzut and Seddat, there is only *ḥeffi* 'make blunt' (and not **sseḥfi/a*). All the derivational prefixes (*s-, t-, n, ttyya-/ṭṭuya-/ttwa-, n-, m-*) are found with both etymologically Berber and Arabic verbs, but depending on the prefix, there may be preferences to use them with Berber or Arabic verbs.[193] Section 3.3.7 discusses various Arabic derived verbs that are found in Senhaja. They that can be considered as borrowed directly from Arabic, and this type of derivation normally does not apply to native Berber verbs. The combination of different derivations is possible to a certain extent, but not frequent; most examples of this are limited to Hmed (Section 3.3.9).

3.3.1.2. The Role of Suppletion

A number of stem II causatives and passives are suppletive to the Berber underived base verbs.[194] In our database, there are thirty-three suppletive stem II causatives and twenty-five suppletive passives. Kossmann (2015d) introduces the term *systematic suppletive borrowing* (abbreviated as SSB). The SSB is provisionally defined by Kossmann as *systematic use of borrowings in order to provide a native word with a derived counterpart*. In Senhaja, suppletive causatives and passives are not as systematic as e.g. suppletive passives in Ghomara (Mourigh 2015: 199-202) or in Tadaksahak (Christiansen-Bolli 2010: 285ff).[195] In Ghomara and Tadaksahak, the suppletion always takes place. In Senhaja, however, some causatives and passives are moprhologically derived. Hence, we do not speak of SSB in the case of Senhaja. Nevertheless, there are parallels with the SSB (as found e.g. in Ghomara and Tadaksahak), although lacking the systematicity.[196]

In Senhaja, it is unpredictable which verb accepts which type of causative or passive (or perhaps, no causative or passive at all, or multiple causatives or passives of different types at the same time). Suppletive causatives constitute almost a quarter of all causatives found in Senhaja (the exact percentage differs depending on the variety: lower in Zerqet and higher in Ketama).[197] While suppletion is not systematic, it clearly plays an important role in the expression of causatives and passives, which is the reason we discuss it alongside various derivation processes.

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[193] This is different in Ghomara, where *s-* is the only prefix that can be attached to the Berber verbs (Mourigh 2015: 180), and where *s-* is normally not combined with Arabic verbs (Mourigh 2015: 313).

[194] This suppletion is comparable to the suppletive borrowing of Arabic verbal nouns corresponding to native Berber verbs (Section 6.5.4).

[195] Ghomara borrows passives from Arabic, while Tadaksahak (Northern Songhay, Mali) borrows passives from Tuareg Berber.

[196] Senhaja suppletive causatives are comparable with suppletive causatives in Ghomara, which are also not systematic, as they co-exist with *s*-derivation (Mourigh 2015).

[197] See Section 3.3.8.1 for the numbers and distribution among the different Senhaja varieties.

Suppletive causatives and passives are not considered as code-switching (CS) by Senhaja speakers, who usually have a very good idea of which Arabic borrowings are part of the Berber language as opposed to the "unnecessary" use of Arabic. In most cases, suppletive causatives and passives are considered "necessary" when there is no native Berber counterpart. However, in some cases, suppletive forms exist alongside derived Berber verbs, but nevertheless are considered as an integral part of Senhaja.

Normally, the choice of a causative or passive is lexically determined in the community. However, different judgements are possible with words that accept multiple causatives or passives. For example, Hmed *myeḵ* 'to marry' accepts both *s*-derived causative *ssemyeḵ* and the Arabic stem II suppletive causative *zuwwež* 'to make marry'. In many cases, especially in Western Senhaja (Ketama), stem II suppletive causatives were preferred by the speakers over the *s*-derivation, which may indicate an ongoing shift to the suppletive causatives.

3.3.2. *S*-derivation

3.3.2.1. Introduction

This section describes the derivation of *s*-causatives. Section 3.2.2.2 deals with the shape of the prefix. Morphological peculiarities are described in Section 3.2.2.3. Section 3.3.2.4 is devoted to the productivity and functions of *s*-derivation. The last section presents examples of lexicalization, where the *s*-prefix became petrified.

According to the etymology of the underived verb, *s*-derived verbs can be divided into two subcategories: 1) derived from etymologically Berber verbs (majority); 2) derived from etymologically Arabic verbs (minority). Examples follow.

1) *S*-causatives derived from Berber verbs

Base	Transl.	CAUS	Translation	Variety
ḵšem	enter	sseḵšem	make enter	pan-Snh.
rkem	be wet	sserkem	make wet	S/H/B
fsi	melt	ssefsi	make melt	S/B/Z

2) *S*-causatives derived from borrowed Arabic verbs

Base	Transl.	CAUS	Translation	Variety
ɛum	swim	sɛum	make swim	pan-Snh.
ḥfi, ḥfa	be blunt	sseḥfi, sseḥfa	make blunt	H/B/T, Z
mḏi	be sharp	ssemḏi	make sharp	K/H/B/Z

3.3.2.2. The Form of the Prefix

In Senhaja, the causative prefix is usually realized as *s(s)-*: a single *s-* is found when the prefix is immediately followed by a consonant. In other contexts, it is realized as *ss-*.[198]

Prefix *s-*

Base	Transl.	Causative	Translation	Variety
ġeṛ	study	sġeṛ	make study	S/T/H/B/Z
bedd	stop/stand	sbedd	make stop/stand	S/B/Z

Prefix *ss-*

Base	Transl.	Causative	Translation	Variety
ani	ride	ssani	make ride	S/T/B/H
bḏu	start	ssebḏu	make start	T/H
ḵšem	enter	sseḵšem	make enter	pan-Snh.

When the verb stem includes *š*, the prefix may become *š(š)-* (sibilant harmony, cf. Section 2.4.1.2), e.g.

- *ḵšem* 'to enter' > *ššeḵšem* (~*sseḵšem*) 'to make enter' (T/Z).

When the verb stem includes *z*, the prefix may become *z(z)-*. Consider the following causative (frozen in most Senhaja, except Ketama):[199]

- *nez* (K) 'to be sold' > *zzenz* (B/Z), *zenz~znez* (H), *znez* (K/T) 'to sell'.

The following verb is also a frozen causative (the base is not used):[200]

- *zawzzer* (K), *zuzzer* (H/Z) 'to winnow'.

However, most verbs that have *z* in their stem, take the usual prefix *s(s)-*:

Base	Transl.	Causative	Translation	Variety
azaġ /e/	be dry	ssazaġ /e/	make dry	T/S/H, B/Z
zwar	precede	ssezwar	make precede	T/Z
fzeg	be wet	ssefzeg	make wet	K/T/S/H/B

[198] The same rule applies to the derivational prefixes *t-* and *n-*.

[199] Compare the passive forms *mnez* (Hmed) ~ *mmenz* (Zerqet) 'to be sold', which has the same verb stem without the causative prefix.

[200] Compare the related noun *ṯazzarṯ* (Zerqet) 'winnowing fork, pitchfork'.

If the verb contains a pharyngealized phoneme, pharyngealization normally spreads to the prefix in Hmed (*s-* > *ṣ-*), but not always in the rest of Senhaja (e.g. in Zerqet). Some speakers allow for both pronunciations, i.e. with *s* and with *ṣ* (with pharyngealization only slightly audible in comparison to Hmed). In the following table, causatives in group *(a)* are usually pronounced with pharyngealized *ṣ* only in Hmed, while causatives in group *(b)* have *ṣ* in both Hmed and Zerqet:

	CAUS: H	**CAUS: Z**	**Translation**	**Base**	**Translation**
a) *s/ṣ*	ṣṣemġuṛ	ssemġuṛ	make grow	mġuṛ	grow
	ṣṣeḫṣi	sseḫsi	extinguish	ḫṣi (H), ḫsi (Z)	be extinguished
b) *ṣ*	ṣḍeṣ	ṣḍeṣ	make laugh	ḍeṣ	laugh
	ṣṣuḍeḍ	ṣṣuḍeḍ	nurse (trans.)	ṭṭeḍ	suckle

3.3.2.3. Morphological Peculiarities

Verbs that start in a geminate usually degeminate the initial consonant when combined with the causative prefix:

Base	**Transl.**	**Causative**	**Translation**	**Variety**
bbukk~bbakk	explode	sbukk~sbakk	make explode	T/S/H/B/Z
kkaw	be dry	skaw	make dry	K/T/S/B/Z

In the following verb, there is no degemination:

- *gg^{w}ed* ‘be afraid’ > *ssegg^{w}ed* ‘make afraid’ (Z).

Some verbs of the type *C:C* add the vowel *u* after the prefix:

Base	**Transl.**	**Causative**	**Translation**	**Variety**
ffaġ /e/	go out	ssufaġ /e/	make go out	pan-Snh.
ṭṭeḍ	nurse (intr.)	ṣṣuḍeḍ	nurse (trans.)	H/Z
ṭṭeṣ	sleep	ssuḍeṣ	make sleep	Z

The following causative is of a similar type, but here, the base verb already contains the vowel *u-* before the geminate; the consonant is ungeminated in the causative:[201]

[201] Cf. Zerqet *aġel*, Ketama, *aġi*, Taghzut/Seddat/Bunsar *wġel*, without a gemination.

Base	Transl.	Causative	Translation	Variety
uġġi	be stuck	ssuġi	make stuck	H

The verb *kker* 'to get up' is originally *nker* (the form *nker* is found in Taghzut).[202] The original *n* shows up in the causative in Ketama, Taghzut, and Hmed, but not in Zerqet. In this case, the geminate remains unaltered in Zerqet:

Base	Transl.	CAUS: K/T/H	CAUS: Z	Translation
kker	get up	ssenker	ssekker	make get up

After the causative prefix, the vowel *a* in some *a*-initial verbs may change to *i*.[203]

Base	Transl.	Causative	Translation	Variety
awe̱d	arrive	ṣṣiwe̱d	make arrive	T/S/H/B/Z
azaġ /e/	be dry	ssizaġ /e/	make dry	B/Z

However, in most verbs, *a* remains unchanged (in all aspects), e.g.

Base	Transl.	Causative	Translation	Variety
ani	ride	ssani	make ride	T/B/S/H
aru	give birth	ssaru	make give birth	T/S/H

3.3.2.4. Productivity and Functions of *s*-derivation

Our database contains 136 *s*-derived verbs.[204] Among *s*-derived verbs, we can distinguish the following sub-categories:

- causatives;
- verbs derived from nouns and from onomatopoeia;
- borrowed stem II causatives with an optional prefix *s*-;
- transitive verbs with an optional prefix *s*-;
- *s*-derived verbs that are in free variation with the base verbs;
- frozen causatives (lacking the underived counterpart);
- *s* prefix combined with the passive derivation (cf. Section 3.3.9.1).

[202] See Galand 2002: 105 on this verb.

[203] In the Perfective and Imperfective, either *i* or *a* is found: *ṣṣiwe̱d* > PERF *ṣṣiwe̱d* ~ *ṣṣawe̱d*, IPF *ṭssiwa̱d* (H) 'to make arrive', *ssiwe̱d* (AOR = PERF) > IPF *ssawa̱d* (Z) 'to make arrive', *ssizaġ* > IPF *ssiziġ* (Z) 'to maky dry'.

[204] See Section 3.3.8.1 for a comparison of *s*-derived vs. stem II verbs (and sub-categories).

Among verbs with the prefix *s-*, there are 68 causatives in our database (as opposed to 81 stem II causatives): 41 are found in Zerqet, 31 in Hmed, and 14 in Ketama, which shows that *s*-derivation of causatives is more productive in Eastern than in Western Senhaja. In all varieties, the function of this prefix is not only to derive causatives, but it has much wider semantics.[205] Its most widespread function is to transitivize the structure, i.e. to derive a transitive verb from an intransitive. However, there are also instances of *s*-derivation that do not fall under the general heading 'transitivizer'. Thus, if the function of this morpheme were merely to derive transitive verbs, how would it be possible to attach it to verbs that are already transitive, or to labile verbs that allow transitive syntax? Also, the *s*-prefix can sometimes be attached to nouns to derive verbs. Denominal *s*-derived verbs may be transitive or intransitive. The *s*-prefix is then a verbalizer (*verbalisateur* in Chaker's (1973) terminology), and its function can be described as verbalization. In all these cases, there is an increase in verb valency. The *s*-prefix introduces a new argument (Agent), and the resulting construction implies agentivity. In this function, *s-* is an activator or activizer (Mettouchi 2004: 101). This function is most apparent when the *s*-prefix is attached to labile verbs. Since the prefix *s-* has different functions, it is not always appropriate to refer to it as a causative prefix. The precise functions of *s*-derivation include:

1) to derive a transitive from an intransitive; this function is quite productive, e.g.
- *ali* (Z) 'to go up' > *ss-ali* 'to make go up';
- *ḵšem* 'to enter' > *ss-eḵšem* (pan-Snh.) 'to make enter'.
2) to derive a ditransitive from a transitive; this function is not productive in Senhaja, but there are some examples, usually found with verbs of lowered semantic transitivity (the ones that can omit their objects), e.g.
- *ečč* 'eat' > *ssečč* 'make somebody eat (something)' (Zerqet-Bunjel).
3) to derive a verb from a noun; this function is not productive in Senhaja. The examples are derived from nouns that may be no longer used in Senhaja:
- *sawi* (Ketama/Bunsar), *siwi* (Hmed), *ssiwel* (Zerqet) 'to speak', derived from the noun *awal* 'word, speech' (still in use in parts of Zerqet, but replaced by the Arabic loans *lkelma* 'word' and *lheḏra* 'speech' in most Senhaja varieties);
- *serkes* (Ketama), *skerkes* (Zerqet) 'to lie', originally from the noun 'lie' (not used in Senhaja);[206]
- *ṣ(ṣ)uḍ* (pan-Snh.) 'to blow', originally derived from the noun *aḍu* 'wind' (replaced in Senhaja by the Arabic loans *rriḥ, rrwaḥ, lehwa, leɛwan*).[207]

[205] Compare Cadi 2006.

[206] Cf. Kabyle *tikerkas* (Dallet 1982), Tashelhiyt *tikerkist*, Chaouia *akerkus* (Haddadou 2007).

[207] See Kossmann 2013a: 124.

4) to derive a verb from onomatopoeia, e.g.[208]
- *skuḥ(ḥ)* (Ketama) ‘to cough’ (the onomatopoeia *kuḥ(ḥ)* is not used on its own in Ketama, but can be used in Zerqet).

5) to derive an unequivocally transitive from a labile verb. This use of the prefix *s(s)-* is not common, but there are examples, e.g.
- *ḫwi* ‘to empty, be emptied’ > *sseḫwi* (H/Z) ‘to empty’;
- *ḥṛaq* /e/ ‘to burn (transitive/intransitive)’ > *sseḥṛaq* /e/ (H/Z) ‘to make burn’.

Furthermore, the prefix *s-* is found with some verbs that are already inherently transitive. This is especially frequent with borrowed verbs, in particular with stem II causatives (especially in Hmed and Zerqet). In this case, the prefix marks such verbs as causatives using the native Berber morphology. In most cases, the variants with and without the prefix *s-* are used interchangeably. Depending on the verb and the dialect, the variant with *s-* is sometimes preferred over the variant without the prefix, e.g.

- *(s)deḫḫel* (H) ‘to make enter’, corresponding to *ḵšem* ‘to enter’;
- *(s)gelles* (H/Z) ‘to make sit’, corresponding to *skurem* ‘to sit’;
- *(s)bekki* (K/H/Z) ‘to make cry’, corresponding to *ttru* ‘to cry’.

3.3.2.5. Reanalysis and Lexicalization

Although verbs with the prefix *s-* usually have a corresponding simple form, this is not always the case, and there are some frozen causatives (or frozen *s*-derived verbs). The following table lists some examples. The base verbs are not used in Senhaja, but are found in other Berber varieties.[209]

Verb with *s-*	**Translation**	**Variety**	**Base**	**Translation**
s(s)ireḏ	wash	T/S/H/B/Z	*ireḏ	be washed
sserweṯ	thresh	S/H/B/Z	*rweṯ	be threshed
ssend(i)	churn	K/S/H/B/Z	*nd(u)	be churned
sḏi (S), sḏel (Z)	incubate	S, Z	*ḏel	be covered
zawzzer, zuzzer	winnow	K, S/H/B/Z	*zzer	be winnowed
ssiff, ssifef	winnow	K/H/S, H/Z	*iff, ifef	be winnowed
čenčef	pluck	K/T/S/H/B/Z	*nčef	be plucked
saġ /e/	buy	pan-Snh.	*aġ	take

[208] This function is not productive, and there are no examples involving animal sounds.

[209] The base verbs could be classified as patientive verbs.

Some verbs occur with a petrified *s* in some Senhaja varieties, but the base verbs are found in other varieties.

***s*-verb**	**Transl.**	**Frozen in:**	**Base**	**Transl.**	**Var.**
ssani	make ride; bring a bride (Z)	Z	ani	ride	K/T/S/H/B
znez, z(z)enz	sell	T/S/H, B/Z	nez	be sold	K
ssens	overnight	B/Z	nes	overnight	K/T/S/H
ssels~ sles	dress	S/Z	les	dress	H/B/T
suff	inflate; make swell (Z)	K/T/S/H/ B	uff	swell	Z

In Hmed, when the verb *nes* 'to overnight' can be combined with the prefix *s*, the resulting verb *ssens* (~*snes*) has two meanings. It can be used 1) as a free variant (synonym) of the base verb: 'to overnight' (the prefix *s*- in this case became reinterpreted as part of the base verb, and turns a biradical verb into a triradical verb), or 2) as a causative of the base verb: 'to make someone overnight, to host' (the prefix *s*- in this case makes a transitive from an intransitive). In Zerqet, the base verb *nes* is no longer found, and *ssens* is the only form currently in use. The verb is used as an intransitive, 'to overnight' (an analytic causative is used in Zerqet to express the meaning 'to let someone overnight, to host'). Compare also the verb *les* (Hmed)~ *res* (Ketama) 'to dress, put on clothes'. In Hmed, the form *s(s)els* is a causative counterpart of *les* or its synonym, while in Zerqet, it is the only form used.

Sometimes, *s*-derived verbs acquire specialized meanings. In this case, we speak of lexicalized causatives or derived forms with irregular semantics, e.g. *su* (pan-Snh. except Hmed) 'to drink' > *ssu* (pan-Snh. except Hmed) 'to irrigate'. In Ketama, the derived verb *ssu* is used in the specific sense 'to irrigate', while the suppletive stem II verb *šeṛṛeb* is used as a semantic causative of the base verb *su* 'to drink'. In Zerqet, the derived *ssu* can be used in the sense 'to cause to drink', but only with animals, while with humans, an analytic construction (periphrasis) is used. Only in Hmed, the base verb *seḇ* 'to drink' has a derived counterpart *sseḇ* that can be used as a semantic causative of the base verb ('to make drink'), alongside the specific sense 'to irrigate'.

3.3.3. *T*-derivation

3.3.3.1. Introduction

This section describes derivation by means of the prefix *t(t)*-, which is mostly used to derive passives. Sometimes (usually, with borrowed Arabic verbs), it is used to derive medio-passives or middles, or intransitive counterparts to transitive verbs. Since both Arabic and Berber languages have a passive prefix starting in *t*-, it is impossible to state with certainty whether this prefix in Senhaja has an Arabic or Berber origin.[210] In Senhaja, the prefix *t*- can be found with native verbs and with Arabic borrowings.[211] In Taghzut (but not in Hmed), the passive prefix can be optionally assibilated (*tt* > *ṭṭ*).

1) Verbs with the prefix *t*- derived from Berber verbs

Base	Translation	Derivation	Translation	Variety
nġeḏ	thresh	ttenġeḏ	be threshed	K/H/Z
z(z)yu	slaughter	ttez(z)yu	be slaughtered	K
ġez	dig	tġez	be dug	H

2) Verbs with the prefix *t*- derived from borrowed Arabic verbs

Base	Translation	Derivation	Translation	Variety
fṛaq /e/	separate	ttefṛaq /e/	be separated	pan-Snh.
ɛzel	separate	tteɛzel	be separated	pan-Snh.
ɛellaq /e/	hang	tɛellaq /e/	be hung	pan-Snh.

3.3.3.2. The Form of the Prefix

The prefix is realized as a short *t* when it is immediately followed by a consonant. In other contexts, it is realized as *tt*-.[212] In Taghzut, the prefix *t(t)*- is optionally assibilated: *t(t)* ~ *ṭ(ṭ)*.

[210] In Ghomara, all *t*-derived verbs are Arabic loans, corresponding to the Arabic stems V (*t*- + stem II) and VI (*t*- + stem III) (Mourigh 2015: 199-201).

[211] Verbs of Arabic origin with the *t*-prefix in Senhaja include stem V (Section 3.3.7.2), Stem VI (Section 3.3.7.3) and also special cases like *t*- x stem I (Section 3.3.7.8). The combination of *t*- and *n*- prefixes is also discussed in Section 3.3.7.8.

[212] The same rule applies to the causative *s*- and the medio-passive *n*- discussed below.

Prefix *t-*

Base	Transl.	Derivation	Translation	Variety
naġ /e/	kill	tnaġ /e/	be killed	H
ẓeḍ	grind	tẓeḍ	be ground	H
šedd	tie, close	tšedd	be tied, closed	K/T/H/Z
ɛellaq /e/	hang	tɛellaq /e/	be hung	K/T/S/H/Z
zeɛzaɛ /e/	destroy	tzeɛzaɛ /e/	be destroyed	T/S/H/Z
sameḥ	forgive	tsameḥ	forgive each other	K/T/S/H/Z

Prefix *tt-*

Base	Transl.	Derivation	Transl.	Variety
ɛzel	separate	tteɛzel	be separated	K/H/Z
nġeḍ	thresh	ttenġeḍ	be threshed	K/H/Z
ḫṭar	choose	tteḫṭar	be chosen	K/H/Z
ẓẓu	plant	tteẓẓu	be planted	K/T/H/Z

3.3.3.3. Productivity and functions of *t*-derivation

In our database, there are 248 examples of *t*-derived verbs, 239 of which are passives. The prefix has the following functions:

1) to derive passives, from both Berber and Arabic borrowed verbs, e.g. *nġeḍ* 'thresh' > *ttenġeḍ* 'be threshed' (K/H/Z); *ɛzel* 'separate' > *tteɛzel* 'be separated' (pan-Snh.);
2) to derive middles and medio-passives of Arabic verbs (Arabic stem V), e.g.[213] *beddi* (trans.) 'change' > *tbeddi* (intr.) 'change' (H); *ɛellem* 'teach' > *tɛellem* 'learn' (pan-Snh.); *feššer* (trans.) 'split' > *tfeššer* (intr.) 'split' (Z).
3) to derive reciprocals from Arabic verbs (Arabic stem VI), e.g. *ṣalaḥ* /e/ 'reconcile' > *tṣalaḥ* /e/ 'reconcile with each other' (pan-Snh.).; *laqi* 'meet' > *tlaqi* 'meet each other' (pan-Snh.); *fahem* 'make understand' > *tfahem* 'understand each other' (pan-Snh.).[214]

[213] As mentioned previously, middles express an event caused by an internal agent, while medio-passives express an event caused by an external agent which is, however, not relevant. The examples in this category usually involve the Arabic stem V (i.e. middles/medio-passives of stem II), cf. Section 3.3.7.2. There are, however, also some examples of the transitive stem II corresponding to the intransitive derived by the prefix *t-* + stem I, e.g. *behheḍ* 'astonish' > *ttebheḍ* 'be(come) astonished' (Z).

[214] Arabic stem VI derives reciprocals from stem III causatives (cf. Heath 2002: 355).

Some Arabic borrowed passives with *t-* are suppletive to the native Berber base verb, e.g. *wweṭ* 'hit' > *tteḍreb* 'be hit' (K/H). Some *t*-derived verbs have no base counterpart, e.g. *tmenni (~tmenna)* (pan-Snh.) 'hope'; *thaweḍ* (T/S/H/Z) 'talk to each other'.[215]

3.3.4. *N*-derivation

3.3.4.1. Introduction

Like the prefix *t(t)-*, the prefix *n(n)-* is found in all Senhaja varieties, and is mostly used to derive passives, but can also be used to derive medio-passives or middles. The two derivations are comparable in function. In many cases, *n(n)-* can be freely substituted by *t(t)-*, especially in Ketama and Hmed, and sometimes in Zerqet. In other cases, in Zerqet, the variant with *n-* is not found, or has a slightly different meaning than a variant with *t-*.[216]

As it is the case with the prefix *t(t)-*, both Berber and Arabic have a passive prefix *n(n)-*.[217] In Senhaja, the prefix *n(n)-* is found both with native and borrowed verbs.[218] In other Berber languages, the prefix *n(n)-* is normally a conditioned variant of *m(m)-* restricted to verb stems that include a labial consonant (except *w*), viz. *m*, *b* or *f* (dissimilation).[219] In Senhaja, by contrast, the prefix *m(m)-* is extremely rare (Section 3.3.5.2), and *n(n)-* cannot be regarded as its allomorph. Also, in Senhaja, the prefix *n(n)-* is regularly combined with Berber and Arabic stems that do not contain a labial consonant. In Arabic (stem VII), the prefix *n(n)-* has no combinatory restrictions concerning the shape of the base stem. It is thus possible that in Senhaja, with the native Berber verbs without a labial consonant, the original prefix *n-* became generalized from an allomorph of *m-* to new contexts (analogical extension). At the same time, Arabic *n*-derived verbs (stem VII) could have been borrowed as such from Arabic (lexical borrowing). On the other hand, not all Arabic borrowed verbs that are found with *n-* in Senhaja are also found with *n-* in Arabic (see below). Some examples follow. Verbs are divided into groups according to their etymology (Berber and Arabic) and the presence/absence of a labial consonant in the stem.

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[215] The verb *haweḍ* in Zerqet means 'to encourage'. In Ketama, *haweḍ* 'to talk' lacks the prefix *t-*.

[216] See Section 3.3.8.2 on the productivity and functions of the prefix.

[217] In Arabic, Stem VII is derived by means of the prefix *n-* from stem I (Section 3.3.7.4). In Senhaja, we also find prefix *n-* combined with stem II verbs (Section 3.3.7.8).

[218] This is different from Ghomara, where all *n*-derived verbs are Arabic loans (Mourigh 2015: 201-202).

[219] See Prasse 1972: 54-55, Galand 2010: 149, Brugnatelli 2011: 23. Compare also Taine-Cheikh 2019 on Zenaga, that has some exceptions to this general rule.

1) Berber etymology, stems with a labial:[220]
- *nneġzem* ‘be hurt’ < *ġzem* ‘hurt’ (H);
- *nnegzem* ‘be hurt’ < *gzem* ‘hurt’ (Z), *nnegzem* ‘be cut’ < *gzem* ‘cut’ (K);
- *nnemger* ‘be harvested’ < *mger* ‘harvest’ (S/H);
- *nnefren* ‘be cleaned (grains)’ < *fren* ‘clean (grains)’ (T/S/H).

2) Berber etymology, stems without a labial:
- *nneġṛeṣ* ‘be cut’ < *ġṛeṣ* ‘cut’ (H/Z);
- *nneḵrez* ‘be plowed’ < *ḵrez* ‘plow’ (K/T/S/H);
- *nnenġeḏ* ‘be threshed’ < *nġeḏ* ‘thresh’ (K).

3) Arabic etymology, stems with a labial:
- *nnefṛaq* /e/ ‘be separated’ < *fṛaq* /e/ ‘to separate’ (pan-Snh.);
- *nnesbaġ* /e/ ‘painted’ < *sbaġ* /e/ ‘paint’ (pan-Snh.).

4) Arabic etymology, stems without a labial:
- *nneṭlaq* /e/ ‘be straightened’ < *ṭlaq* /e/ ‘straighten’ (pan-Snh.);
- *nneẓṛaɛ* /e/ ‘be sown’ < *ẓṛaɛ* /e/ ‘sow’ (pan-Snh.);
- *nnežraḥ* /e/ ‘be injured’ < *žraḥ* /e/ ‘injure’ (pan-Snh.).

Examples in group 1 (Berber verbs with a labial in the stem, e.g. *nnemger* ‘be harvested’) could be native to Berber, with *n-* as an allomorph of *m-*. Arabic stem VII verbs (with or without a labial) could have been borrowed as such from Arabic, although examples in group 3 (borrowed Arabic verbs with a labial, e.g. *nnesbaġ* /e/ ‘be painted’) could have also been formed independently within Senhaja (with *n-* as an allomorph of *m-*). Finally, examples in group 2 (Berber verbs without a labial in the stem) are special as, on the one hand, they are derived from native Berber verbs (and thus are not Arabic borrowings), but, on the other hand, contain no labial consonants, and thus the prefix *n-* in such examples cannot be regarded as an allomorph of the Berber middle prefix *m-*. In this group, we analyze the prefix *n-* as an analogical extension of the original allomorph of *m-*.

It must be noted that not all Arabic loans that take *n-* in Senhaja are found with *n-* in Arabic (i.e., not all of them are examples of stem VII). For example, the following derivations are found in Senhaja, but not in Arabic:

[220] Only examples with the labials *m* and *f* are provided, since all our examples (14 in total) with a labial *b* involve Arabic loans.

- *nḥelles* ‘be saddled’, passive of *ḥelles* ‘saddle’ (T/S/H);
- *nġerbel* ‘be sieved’, passive of *ġerbel* ‘sieve’ (K/T/S/H).

Such derivations are not found in Arabic, and hence cannot be borrowed directly. That is to say, the prefix *n-* in Senhaja is used in a more general way than in both Arabic and other Berber languages. The generalization of *n-* could have been strengthened by contact with Arabic, but the prefix itself is not a borrowing.

3.3.4.2. The Form of the Prefix

The form of the *n*-prefix follows the same rules as the prefixes *t(t)-* and *s(s)-*: the prefix is realized as a short *n* when it is immediately followed by a consonant.

Prefix *n-*

Base	Transl.	Derivation	Transl.	Variety
ɛellaq /e/	hang	nɛellaq /e/	be hung	K/T/S/H
feṛṛaq	distribute	nfeṛṛaq /e/	be distributed	K/T/S/H
qeṭṭaɛ /e/	cut	nqeṭṭaɛ /e/	be cut	K/T/S/H/Z

Prefix *nn-*

Base	Transl.	Derivation	Transl.	Variety
ɛzel	separate	nneɛzel	be separated	K/T/S/H/Z
nġeḏ	thresh	nnenġeḏ	be threshed	K/H
ḫḏar, ḫṭar	choose	nneḫḏaṛ, nneḫṭar	be chosen	S, T/H

3.3.4.3. Morphological Peculiarities

When the prefix *n(n)-* is added, three verbs in our database insert *u* between the prefix and C1 (Zerqet):[221]

Base	Translation	Derivation	Translation	Variety
ṛẓem	release	nnuṛẓem	be released	Z
ršaq /e/	split	nnuršaq /e/[222]	be split	Z
ffer	hide	nnuffer	be hidden	Z

[221] The base verbs are not always transitive. The verb *ṛẓem* ‘to release’ is transitive, while *ršaq* ‘to split’ is intransitive (the transitive counterpart is *reššaq*), while *ffer* ‘to hide’ is labile.

[222] The variant *nneršaq /e/* is also found, and is preferred by some speakers.

In some cases, we find stem VII (*n*-prefix with stem I), while stem I is not used in Senhaja.[223] The transitive counterpart is stem II, e.g.

Stem II	Translation	Stem VII	Translation	Variety
ḥetteš	cut (grass)	nneḥteš	be cut (grass)	T/S/B
qeššer	peel	nneqšeṛ	be split, peeled	T/H/B
šetteṭ	break into pieces	nnešteṭ	break into pieces (intr.)	pan-Snh.
kellaḥ /e/	embarrass	nneklaḥ /e/	be embarrassed	K/S/H
feššer	split (trans.)	nnefšer	split (intr.)	S/H/Z

3.3.4.4. Productivity and Functions of *n*-derivation

In our database, there are 90 *n*-derived verbs, 76 of which are passives. There are less examples of *n*-derived verbs in Zerqet than in Ketama and Hmed, as the prefix *t-* is generally preferred in Zerqet, e.g.[224]

- *žeṛṛ* 'to pull' (K/T/S/Z) > passive *tžeṛṛ* (K/T/S/Z), *nžeṛṛ* (K/T/S);
- *riyyeš* (K/T/S/H/Z) 'to pluck' > passive *triyyeš* (K/T/S/H/Z), *nriyyeš* (K/(S)/H);
- *lqeḍ* (H/S/Z) 'to pluck' > passive *ttelqeḍ* (H/S/Z), *nnelqeḍ* (S/H).

The prefix has the following functions:[225]

1) to derive passives, e.g. *mger* 'harvest' > *nnemger* 'be harvested' (S/H);
2) to derive middles and medio-passives, e.g. *ffer* 'hide' > *nnuffer* 'hide (intr.)' (Z/M), *ɛzel* 'separate' > *nneɛzel* 'be separated, separate oneself' (T/S/H/Z).[226]

Some borrowed passives with *nn-* are suppletive to the Berber native base, e.g. *sell* 'hear' > *nnesmaɛ* 'be heard' (K/S/H), *n(u)ġ* 'kill' > *nneqṭel* 'be killed' (K/S/H).
With some verbs, the *n*-prefix seems to derive a medio-passive in Zerqet, but a usual passive in Ketama and Hmed, e.g. *nneftaḥ* /e/ 'to open (oneself)' (Zerqet), e.g. of a door in a haunted house, vs. 'to be opened' (a regular passive) in Ketama/Hmed.

[223] This derived form (*n-* x stem I) may co-exist with other passive forms, viz. *t-* x I, *t-* x II (stem V), and *n-* x II. Especially Hmed variety allows for maximum flexibility, with often up to four passive derivations used interchangeably.

[224] This is especially true for the pure passive, while *n-* is used in Zerqet for middles and medio-passives (see below). Ketama and Hmed often allow for both prefixes with the same verb without a difference in meaning.

[225] In both functions, the prefix is found with verbs of both Arabic and Berber origin.

[226] This function is especially pronounced in Zerqet, but is also found in the rest of Senhaja. The difference between Zerqet and the remaining varieties is that in Zerqet, specific *n*-derived verbs are usually understood as middles or medio-passives, while in Hmed and Ketama, the same *n*-derived verbs can be understood either as regular passives or as middles/medio-passives.

3.3.5. Prefixes *ttya-/ttwa-* (and Variants) and *m(m)-*

In this section, we discuss other derivational prefixes that are less productive and less frequent in Senhaja. First, there are dialect-specific prefixes *ttya-, ṭṭuya-, ttwa-*. Second, it is a very rare prefix *m(m)-*. Prefixes in both groups are of Berber origin, are used as a valency-decreasing mechanism, and are found with verbs of both Berber and (more rarely) Arabic origin.

3.3.5.1. Prefixes *ttya-, ṭṭya-, ttuya, ṭṭuya-, ttwa-*

Alongside the prefixes *t(t)-* and *n(n)-*, there is a group of other prefixes starting in a dental stop that likewise are used as a valency-decreasing mechanism. These prefixes are dialect-specific: *ttya-* (Ketama), *ṭṭya-* (Taghzut), *ttuya-* (Seddat/Bunsar), *ṭṭuya-* (Hmed), and *ttwa-* (Zerqet). As mentioned in Section 1.8.1.2, the form of the prefix is an isogloss that divides Senhaja into two. On the one hand, there are prefixes with the semivowel *y* (most varieties). On the other hand, there is prefix *ttwa-* with the semivowel *w*, found in Eastern Senhaja (Bunsar, Zerqet, Mezduy), which it shares with Tarifiyt (Lafkioui 2007a, map 205). Unlike *t(t)-* and *n(n)-*, these prefixes are used exclusively to derive passives, although in some cases, the passive may be lexicalized, i.e. acquire a specific meaning. These prefixes are not as productive as *t(t)-* and *n(n)-*. In our database, there are 24 verbs that accept these prefixes (6,5% of all passives).[227] The distribution varies per different Senhaja varieties: the derivation is most frequent in Eastern Senhaja (Zerqet), with 14 examples (10% of the passives in Zerqet) as opposed to 5 examples in Ketama (5% of the passives in Ketama). The prefixes are found both with etymologically Berber and Arabic verbs, but are more frequent with native Berber verbs than with borrowings. The native prefixes with Arabic borrowings are more frequent in Zerqet, but there are a few examples in Ketama and Seddat, as well. So far, no Arabic borrowings have been found with these prefixes in Taghzut or Hmed. In two cases, the prefixes are found with Arabic stems whose base counterparts are not used in Senhaja, and that correspond to native Berber verbs. Examples within each category follow:

1) Prefixes with native Berber verbs:
- *ttyasi* (K), *ṭṭyasi* (T), *ṭṭuyasi* (H), *ttwasi* (Z) ‘be lifted’ < *asi* ‘lift’;
- *ttyawweṭ* (K), *ṭṭyawweṭ* (T), *ṭṭuyawweṭ* (H), *ttwawweṭ* (Z) ‘be hit’;[228]

[227] Our database includes 366 passives of all types. This number excludes *t-* and *n*-derived verbs that are not semantically passives, and intransitive (passive) readings of labile verbs. See Section 3.3.8.2.
[228] This verb is lexicalized in Zerqet and is used in the meaning ‘to be demon- or djinn-possessed’.

- *ttyak̲er* (K), *ṭṭyak̲er* (T), *ttuyak̲ʷer* (S), *ṭṭuyak̲er* (H), *ttwak̲(k̲)ʷer* (Z) ‘be stolen’ < *ak̲(ʷ)er* ‘steal’.

2) Prefixes with Arabic borrowed verbs:
- *ttyabni/a* (K), *ttwabni/a* (Z) ‘be built’ < *bnu* ‘build’;
- *ttyaġleb* (K), *ttuyaġleb* (S/B), *ttwaġleb* (Z) ‘be defeated’ < *ġleb* ‘defeat’;
- *ttyaqlaɛ* /e/ (K), *ttuyaqyaɛ* /e/ (S), *ttwaqlaɛ* /e/ (Z) ‘be uprooted’.

3) Prefixes with suppletive Arabic stems:
- *ttwaɛṭa* ‘be given’, suppletive passive of *ekk* ‘to give’ (Z);
- *ttyak̲el* ‘be eaten’, suppletive passive of *šš* ‘to eat’ (K).

When the prefix is attached to the verb that starts in a geminate, the consonant may be degeminated in most Senhaja (Taghzut, Seddat, Bunsar, and Hmed), but not in Ketama and Zerqet, e.g.

Base	**Translation**	**PASS (T/S/B/H)**	**PASS (K/Z)**	**Translation**
ṭṭef	catch	ṭṭyaṭef (T), ttuyaṭef (S/B), ṭṭuyaṭef (H),	ttyaṭṭef (K), ttwaṭṭef (Z)	be caught

3.3.5.2. The prefix *m(m)-*

The prefix *m(m)-* is found in many Berber varieties and is generally used to derived medio-passives and middles (especially reciprocals, as e.g. in Central Moroccan Berber).[229] This prefix is not productive in Senhaja.[230] The prefix *m(m)-* is found only with three verbs in Senhaja: two of Berber, and one of Arabic origin. With the two verbs of the Berber origin, it expresses a passive. With a verb of Arabic origin, it expresses an intransitive/middle. These verbs are:

- *mnez* (T/H), *mmenz* (S/Z) ‘be sold’;

[229] Generally, in Berber languages, the semantics of the middle prefix *m(m)-* is more irregular than that of *t(t)-*. In Eastern Berber varieties, which lack a passive prefix *t(t)-*, this prefix functions as a passive. This is the case e.g. in Ghadames (Kossmann 2013b). On *m-* in Zenaga, see Taine-Cheikh 2005.

[230] The unproductivity of this prefix could be caused by the spread of the prefix *n(n)-* (see above). Alternatively, it could be the demise of *m(m)-* that triggered the spread of *n(n)-*. Reciprocals are formed by other means, usually by periphrasis. There is a homophonuous prefix *m-* used with passive participles. At present, in Senhaja, most verbs with the prefix *m-* are understood as passive participles rather than as middles, e.g. *qqen* ‘to tie’, passive *tteqqen~nneqqen* (K/H) ‘be tied’, passive participle *meqqen* (H), *meqnun* (T) ‘tied’.

The original base of this verb, *nez* ‘be sold’, is currently found only in Ketama. In the rest of Senhaja, we only find a lexicalized causative *znez*, *zzenz* ‘to sell’.

- *mmečč* ‘be eaten’ (S/H/Z);

This is a passive derivation of *ečč* ‘to eat’. Compare also *tmečč* (T/H/Z) and *nmečč* (T) ‘to be eaten’. These derivations can also be used in a specialized sense ‘to be worn out, to become blunt(ed)’.

- *mɛuṛṛež* ‘to limp’ (Z-Ikherruden).

This is based on the Arabic root *ɛṛž*.[231] A cognate verb *ɛeṛṛež* (stem II) has the meaning ‘to make someone limp’ (causative).

The forms *tmečč* (T/H/Z) and *nmečč* (T) ‘be eaten’ seem to have two derivational prefixes, both of which are valency-decreasing. This is highly unusual in Senhaja.[232] The corresponding passive counterparts in Moroccan Arabic, *tenkel* and *netkel* ‘be eaten’, likewise have a double passive prefix, in varying order: *t-* and *n-* or *n-* and *t-*.[233] These forms have been borrowed in parts of Senhaja (Ketama, Taghzut, and Hmed varieties), where *nnetkel* is more frequent than *ttenkel*. However, the native forms *tmečč* and *nmečč* are not necessarily a calque on Arabic. There are two possible explanations for these forms. The first explanation is morphophonological: roots consisting of two consonants or a single geminate are generally rare in Senhaja, and there is a tendency (but not a rule) to expand such roots with a derivational prefix, thus turning them into a more frequent type.[234] In this case, the root *čč* receives two derivational prefixes, with the resulting forms having the more usual CCC-structure. The second possible explanation of the form *tmečč* is the reinterpretation of the Imperfective prefix *t-* as part of the stem, or as the passive prefix, and hence its generalization to the Aorist.[235] The reinterpretation of *t-* could have been triggered by the fact that the verb is of an unusual shape (a single geminate). However, this explanation is not valid for *nmečč* (Taghzut).

The three *m*-derived verbs and the double-derived *tmečč/nmečč* do not formally mark the Perfective stem. On the Imperfective of these verbs, see Section 4.5.8.2.

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[231] In the Bunjel dialect, the prefix is *n-*: *nɛuṛṛež*.

[232] For other combinations of derivational prefixes, such as causative + passive and passive + causative, see Section 3.3.9.

[233] These forms are found in Jbala Arabic and in other Moroccan dialects (Caubet 1993: I/42).

[234] Consider the original verb *les* ‘to wear (clothes)’ that became *s(s)els* in Zerqet (a generalized causative, where the prefix *s-* became reinterpreted as part of the stem).

[235] There are other examples of generalized Imperfectives in our database, e.g. *ttru* (K/Z) ~ *ṭru* (H) ‘to cry’.

3.3.6. Arabic Stems in Senhaja: Stem II (CC:C, CC:V)

This and the following two sections deal with Arabic stems found in Senhaja.[236] Arabic stems are normally derived from Arabic verbs, and, with a few exceptions, do not apply to verbs of Berber origin. Arabic derived stems are borrowed directly as such, rather than formed within Senhaja. Those stems that are derived on the basis of Berber verbs must have been formed within Senhaja. Stem I is regarded as the base, from which other stems are derived. Stem IV in its original form does not occur synchronically in Moroccan Arabic (Harrell 1962: 29, 34; Marçais 1977: 55-56) or in Senhaja.[237]

Verbs derived by gemination of the second radical of the root are known as stem II verbs in Arabic grammar. Stem II is the most frequent Arabic stem found in Senhaja. Stem II verbs are mostly causatives, but not always.[238] In this section, we focus on stem II causatives.[239] In Senhaja, some stem II causatives are cognate to the base verb, while others are suppletive to the base verb. On the combination of stem II causatives with the prefix *s-*, see Section 3.3.2.4.

3.3.6.1. Sub-classes in Stem II Causatives

Stem II causatives in Senhaja may be related to the base verb, or may be suppletive to it (when the base verb is native Berber). When the stem II causative shares the root with the underived base verb, it can be analyzed as derived from it by the gemination of the second radical of the root. Alternatively, it can be analyzed as directly borrowed from Arabic. We consider most stem II causatives as directly borrowed from Arabic. However, a few native Berber verbs have stem II causatives that must have been formed within Berber by applying Arabic morphology to the Berber material (PAT, or *pattern* borrowing in Sakel & Matras' terminology).[240] For the numbers, percentages, and distribution of different kinds of causatives in Senhaja, see Section 3.3.8.1.

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[236] Compare Mourigh 2015: 202-203 for Ghomara.

[237] It is not found in Ghomara, either (Mourigh 2015: 217). Aguadé 2012 deals with stem IV verbs from a diachronic perspective, and concludes that there are many verbs in North African dialects that are recognizable as former stem IV verbs. Compare also Durand 1944: 66 and Heath 2002: 338-339.

[238] For the definition of causatives, see Section 3.3.1.1.

[239] On functions of stem II verbs, cf. Section 3.3.6.4.

[240] Sakel & Matras 2004. Compare Matras & Sakel 2007a: 15-29, Matras & Sakel 2007b. Pattern borrowing is the adoption of a strategy or structure from another language.

According to the etymology of the underived verb, we can distinguish among the following sub-categories within stem II causatives in Senhaja:[241]

1) Cognate stem II causatives:
   a) with etymologically Arabic verbs as base counterparts (majority);
   b) derived from etymologically Berber verbs (rare exceptions).
2) Suppletive stem II causatives
   a) corresponding to etymologically Berber verbs (majority);
   b) corresponding to etymologically Arabic verbs (minority).

Examples in each category follow.[242]

1a. Cognate stem II causatives with Arabic base counterparts

Base	Transl.	Causative	Translation	Variety
kmel	finish (intr.)	kemmel	finish (trans.)	K/T/Z
lsaq /e/	stick (intr.)	lessaq /e/	stick (trans.)	T/S/H/Z
mḏi	be sharp	meḏḏi/a	make sharp	pan-Snh.

1b. Stem II causatives derived from native Berber verbs

C2 gemination normally does not normally apply to native Berber verbs to derive causatives.[243] However, there are some exceptions. The following table lists all the examples in our database. Stem II causatives derived from native Berber verbs may be optionally preceded by the causative prefix *s-* in Hmed.

Base	Transl.	CAUS	Translation	Variety
bdeḏ	stop	(s-)beddeḏ	make stop	H
ḵšem	enter	ḵeššem (K), (s-)ḵeččem (H)	make enter	K, H
mġi	sprout	(s-)meġġi/a	make sprout	T/H
rkem	be wet	(s-)rekkem	make wet	H
nġeḏ[244]	be threshed	(s-)neġġeḏ	thresh	H/Z

[241]Senhaja behaves different from Ghomara (Mourigh 2015: 313), where *s*-prefix is normally combined only with Berber native verbs, while cognate stem II causatives only occur with Arabic base counterparts.

[242] As mentioned previously, some of the base verbs allow for multiple causatives.

[243] It is according to expectation that nonconcatenative (templatic) morphology is harder to borrow than concatenative morphology (Souag 2020).

[244] The verb *nġed* is found in Middle Atlas Tamazight (Taïfi 1991) and Kabyle (Dallet 1982), where it means ‘to powder’, ‘to grind finely’.

The following verb also belongs to this category in Ketama:[245]

Base	***Transl.***	***CAUS***	**Translation**	**Variety**
sis	boil (intr.)	siyyes	boil (trans.)	K

2a. Suppletive stem II causatives with Berber base counterparts

Base	**Transl.**	**CAUS**	**Translation**	**Variety**
azaġ /e/	be dry	gebbes	make dry	H/B
ḥsi (K/H), taki (T), ḍeṛ (S), wḏu (B), bḏu (Z)	fall	ṭiyyaḥ /e/	make fall	S, B/Z, T
ffaġ /e/	exit	ḫeṛṛež	make exit	K/H/B/Z
ḵšem	enter	deḫḫel	make enter	K/T/S/H (Z)
rwi, rwež (T)	flee	herreb	make flee	K/S/H/B, T
ssen	know	ɛeṛṛef	make know	K/T/S/H (Z)
wm, mm, ww, wwi/a	cook (intr.)	ṭiyyeb	cook (trans.)	K, T, S/H (Z)

2b. Suppletive stem II causatives with Arabic base counterparts

Base	**Transl.**	**Causative**	**Translation**	**Variety**
ḥmu	be hot	seḫḫen	make hot	K/S/H/B/Z
ḥsi[246]	fall	ṭiyyaḥ /e/	make fall	K/H
myeḵ[247]	marry	zuwwež	make marry	K/S/H/B

3.3.6.2. Morphological Peculiarities: Stem II of CVC Verbs

Verbs of the type *CuC* and *CiC* (Arabic "hollow verbs") form stem II in the following way:[248]

1) *CuC* verbs (verbs with *w* as C2) have *ww* as C2 in stem II;
2) *CiC* verbs (verbs with *y* as C2) have *yy* as C2 in stem II.

When the base verb is of the *CaC* type, the stem II causative also has *yy* as C2.

[245] This verb may be a frozen causative. Compare Ghomara (Mourigh 2015) and Tashelhiyt *sis* 'to boil', Tuareg *aws* 'boil', *s-wes* 'make boil' (Haddadou 2007). In Ketama, *sis* is an intransitive verb, and *siyyes* is its transitive counterpart. In Zerqet, the verb is realized as *syes*, and in Hmed, as *siyyes*. Both in Zerqet and Hmed, these verbs are labile, and have no causative counterparts.

[246] Compare Arabic *ḥṣel* 'to get stuck', which is also found in Senhaja.

[247] From the Arabic root *mlk* 'to own, possess, have as property'. Zerqet *mleḵ*, CAUS *ssemleḵ* ~ *zuwwež*.

[248] Such verbs are realized as the CVC-type (i.e. with a medial full vowel): *CuC* when the second radical is *w*, and *CiC* when the second radical is *y*.

Some base verbs of the CVC type have different vowels depending on the Senhaja variety, because Arabic CVC verbs can be adopted differently into Berber (cf. Kossmann 2013a: 265-269). The causative counterparts follow the Arabic pattern. As a result, the verb may belong to the *CaC* type in a given Senhaja variety, but have *ww* as C2 in the causative counterpart, e.g.

- Zerqet *faṯ* 'to pass' (vs. Ketama/Hmed *fuṯ*), causative *fuwweṯ* 'to make pass'.

1) *CuC* base verbs (verbs with *w* as C2)

Base	Transl.	Stem II	Translation	Variety
ẓuṛ	visit	ẓuwweṛ	make visit	K/H
dub	melt	duwweb	make melt	K/T/S/H/B/Z
duḫ	be dizzy	duwwaḫ /e/	make dizzy	K/T/S/H/B/Z

2) *CiC* base verbs (verbs with *y* as C2)

Base	Transl.	Stem II	Translation	Variety
fiq	wake up	fiyyaq /e/	make awake	pan-Snh.
rib	be destroyed	riyyeb	destroy	pan-Snh.
ɛiš	live	ɛiyyeš	make live	pan-Snh.

3) *CaC* base verbs

The following verbs are of *CaC* type in specific varieties. The first two have *yy* as C2 in the causative counterparts, while the last one has *ww* as C2 in the causative counterpart:

CaC	Var.	CiC, CuC	Var.	Transl.	Stem II	Translation
žaf	Z	žif	K/T/S/H	choke	žiyyef	make choke
ban	K/S/Z	b̲in	H	appear	biyyen	make appear
faṯ	Z	fuṯ	K/T/H	pass	fuwweṯ	make pass

3.3.6.3. Stem II Causatives with Prefix *s-*

Many stem II causatives (especially those that are suppletive to the base) optionally take the Berber causative prefix *s-*.[249] This phenomenon is especially frequent in Eastern Senhaja (Zerqet, Mezduy) and Hmed, but is sometimes found in Western

[249] Sometimes, the *s*-prefix is also combined with other stem II verbs that are not causatives. In this case, the resulting *s*-derived verb can have two meanings: synonymous to the base verb, and its causative, e.g. *neqqez* 'to jump' > *sneqqez* 1) 'to jump' and 2) 'to make jump' (H/Z).

Senhaja, too.[250] Such forms are seemingly 'double-derived', as a change in verb valency is marked both by the use of stem II and the prefix *s-*. *S*-derived stem II causatives are normally used interchangeably with their prefixless stem II counterparts. Examples in the following table are suppletive stem II causatives.

Stem II with *s-* that have suppletive base counterparts

Stem II	Translation	Suppl. base	Transl.	Variety
(s)bekki	make cry	ttru	cry	S/H/Z
(s)gelles	make sit	skurem	sit	S/H/Z
(s)neɛɛes	make sleep	ṭṭeṣ	sleep	T/S/H/Z
(s)wekkel	make eat	čč	eat	T/S/H

Examples in the following table are cognate stem II causatives.

Stem II with *s-* that have cognate base counterparts

Stem II	Translation	Cognate base	Transl.	Variety
(s)duwweb	make melt	dub	melt	T/S/H/Z
(s)ɛuwwem	make swim	ɛum(m)	swim	T/S/H
(s)fehhem	make understand	fhem	understand	T/S/H
(s)feṛṛaḥ /e/	make happy	fṛaḥ /e/	be happy	T/S/H/Z

Examples in the following table have two alternative base forms (suppletive or cognate to stem II causatives).

Stem II with *s-* that have suppletive and cognate base counterparts

Stem II	Translation	Cognate base	Suppl. base	Transl.	Variety
(s)weqqef	make stop	wqef	bded	stop	H
(s)fiyyaq **/e/**	make get up	fiq	kker	get up	S/H
(s)rekkeb	make ride	rkeb	ani	ride	H

In Senhaja, the prefix *s-* is routinely found with stem II verbs, including those that are unambiguously transitive (i.e., not labile). In such examples, the prefix cannot have the function to make such verbs unequivocally transitive, as in some other Berber varieties.[251] To our knowledge, this optional use of the prefix *s-* with stem II causatives

[250] See Section 3.3.2.4 on such uses of the prefix *s-*.

[251] A few examples of borrowed Arabic stem II verbs with and without the prefix *s-* are found in Eastern Kabyle (Ihbachen variety, Rabdi *forthcoming*), where, however, the forms tend to specialize in slightly

is a feature specific to Senhaja, and is not found elsewhere in Berber, including Ghomara (Mourigh 2015).[252]

In some verbs, the prefix *s* with the stem II causative can derive a causative of a causative. Consider, for example, the counterparts of the verb *ḍeṣ* (K/H/Z) 'to laugh':

- *deḥḥek* (K/H/Z) 'to make someone laugh' (suppletive stem II causative);
- *sdeḥḥek* (H/Z) 1) 'to make someone laugh' (free variant of *deḥḥek*), and 2) 'to make someone make someone else laugh' (*s*-derived causative of *deḥḥek*).

Such examples are rare, however, and normally, stem II causatives take *s*-prefix without a change in meaning.

3.3.6.4. Productivity and Functions of Stem II Verbs

There are 140 stem II verbs in our database (as opposed to 136 *s*-derived verbs).[253] Not all stem II verbs are causatives (see Section 3.3.6). If we exclude non-canonical causatives from the count, there are 81 stem II causatives in our database (as opposed to 68 canonical *s*-derived causatives): 47 of them are found in Zerqet, 65 in Hmed, and 56 in Ketama. Among stem II causatives, ca. 41% are suppletive. The percentage of suppletive stem II causatives is lower in Zerqet (36%) than in Ketama (54%).

The different functions of stem II verbs include:[254]

1) to derive a transitive (causative) from an intransitive

This category is especially frequent in Senhaja, e.g.

- *bɛeḏ* 'be far' > *beɛɛeḏ* (K/T/S/H/Z) 'make far';
- *ban* (K/Z), *bin* (H) 'appear' > *biyyen* (K/H/Z) 'make appear';
- *wqef* (K/H) (alongside the native Berber *bdeḏ*) 'stop, stand' > *weqqef* (K/H) 'make stop, stand';

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different meanings, or the prefix *s-* is used to mark a labile verb as transitive, e.g. *qeddem* 1) 'to come close(r)' (intr.), 2) 'to bring close(r)' (tr.) ~ *sqeddem* 'to bring close(r)' (tr.).

[252] In the Berber of Jerba (Brugnatelli p.c.) the verb 'to cook' has two causative forms, *ḍeyyeb* (stem II) and *sḍiyeb*. In this case, *sḍiyeb* has the prefix *s-*, but lacks the gemination of C2. This example is thus different from what is found in Senhaja.

[253] See Section 3.3.8.1 for a comparison of *s*-derived vs. stem II verbs (and sub-categories). A verb is counted as "stem II" if it has a base counterpart (which needs not be a verb), suppletive or not. Not included in the count are C2 geminated verbs that have no sense 'to cause', have no base counterpart, and have no cognate nouns or adjectives.

[254] For the stem II in Moroccan Arabic, see Marçais 1977, Harrell 1962: 31-32, and Caubet 1993: 44-46. For the stem II more generally in Arabic, see Holes 2004; Badawi, Carter, & Gully 2013; Ryding 2005; and Cuvalay-Haak 1997: 97ff. In Arabic, stem II verbs can be deverbal (expressing causation, intensity, repetition, plurality); can be derived from a noun; can have no semantic relation with either verbs or nouns based on the same root.

- *ḥlef* (alongside the native *ggall*) ‘swear’ > *ḥellef* (K/T/H) ‘make swear’;
- *rkeb* (alongside the native *ani*) ‘ride’ > *rekkeb* (H) ‘make ride’.

2) to derive a ditransitive (causative) from a transitive

Examples occur with the so-called verbs of lowered semantic transitivity. All examples are suppletive. Our reason to include such examples in the discussion is the existence of Berber *s*-derived causatives in the same category:

- *ešš* (K), *ečč* (H) ‘to eat’ >*wekkel* (K/H) ‘to make eat, feed’ (cf. Z *ečč* > *ssečč*);
- *su* ‘to drink’ > *šeṛṛeb* (K/Z) ‘make drink’ (cf. H *seḇ* > *sseḇ*);
- *sell* (K/T/H) ‘to hear’ > *semmaɛ* /e/ (pan-Snh.) ‘to make hear’.

3) to derive an (unequivocally) transitive verb from a labile verb

This use of stem II derivation is not common, e.g.

- *ḥraq* /e/ ‘burn (labile)’ > *ḥeṛṛaq* /e/ (T/H) ‘make burn’;
- *ġli* ‘boil’ (labile) > *ġelli* (T/H) ‘boil’ (trans.).

There are stem II verbs that have no corresponding (suppletive or cognate) base counterparts, but show a relationship of some kind to cognate nouns.[255] The following verbs have a corresponding noun that share the same root:

Noun	**Translation**	**Stem II verb**	**Translation**	**Variety**
ṣṣabun	soap	ṣebben	wash	K/T/S/H/Z
ssalam	greeting; peace	sellem[256]	greet	K/T/S/H/Z
lkedba	lie, deception	keddeb	lie, deceive	T/S/H/Z
leġda	lunch	ġeddi[257]	feed lunch	S/H
leɛša	dinner	ɛešši[258]	feed dinner	T/S/H
ṛṛwina	ruin, confusion	ṛuwwen	ruin, destroy	K/T/S/H/Z

The following verbs are not semantically causatives, although they have a base stem I counterpart without a geminated C2:[259]

[255] The denominal derivation is not always certain (cf. Cuvalay-Haak 1997: 100), especially if there are also stem I verbs with the same root (but different semantics), and alternative classifications are possible.

[256] In Cuvalay-Haak 1997: 100, the verb ‘to greet’ is classified as delocutive (related to the utterance, locution: ‘to say *as-salāmu ɛalaykum*’). There is a related stem I verb, *slem* ‘become Muslim’.

[257] Compare *tġeddi/tġedda* (K/H/Z) with the prefix *t-* for the intransitive ‘to eat lunch’.

[258] Compare *tæešši/tæešša* (K/H/Z) with the prefix *t-* for the intransitive ‘to eat dinner’.

[259] These verbs (and their senses) are borrowed from (Moroccan) Arabic.

CCC	Translation	Stem II	Translation	Variety
ṭlaq /e/	release	ṭellaq /e/	divorce	pan-Snh.
ṣref	pay for	ṣerṛef	exchange money	pan-Snh.
qyeb, qleb	turn/be turned	qelleb	search	H, K/Z
fsaḫ /e/	open	fessaḫ /e/	disassemble	H/Z
brem	roll	berrem	drill	H
qbaḥ /e/	be bad	qebbaḥ /e/	smack	H/Z

3.3.6.5. C2 geminated Verbs without a Base Counterpart

Some C2 geminated verbs are not causatives, and have no underived counterparts. In this case, the gemination of C2 can be posited as inherent (specified in the root), at least within Senhaja. Sometimes, the corresponding verb in Arabic may lack the gemination, e.g. *ɛeṛṛež* (Hmed) vs. Arabic *ɛṛež* 'to limp'; *qeṭṭeṛ* (K/H/Z) vs. Ar. *qṭeṛ* 'to drip'. The following examples are stem II verbs that have no corresponding base verb:[260]

CC:C type

Verb	Transl.	Variety	Verb	Transl.	Variety
a) Arabic origin			**b) Berber origin**		
guwwez	send; pass	pan-Snh.	ḥenneḏ	wrap	H/Z
huwweḏ	descend	S/H/Z	ġellež (T), ġellel (Z)	milk	T, Z
neqqez/neggez	jump	pan-Snh.	ẓelḷleg	wring	T
beddel	change	T/S/Z			

CC:V type

Verb	Transl.	Variety	Verb	Transl.	Variety
a) Arabic origin			**b) Berber origin**		
beddi	change	S/K/H	ẓemmi	wring	K/S/H/Z
werri	show	K/T/H	ẓelḷi	wring	H
luwwi	roll	pan-Snh.	ḏenni	blow	H
ɛelli	ascend	pan-Snh.	ġelli	gather	K/H

[260] Many, but not all of such examples are Arabic borrowings. Some examples are Arabic borrowings, but changed their meaning in Senhaja. For example, the Arabic *raqaba* 'look attentively' has developed different meanings: 'to look' (H) and 'to disappear' (H/Z). The Arabic root *ṣḥḥ* ('correct, make sure') developed into a more general 'to look' in parts of Hmed (Tafurnut dialect).

3.3.7. Other Arabic Stems in Senhaja

3.3.7.1. Stem III (*CaCC*)

Stem III verbs insert *a* after C1 and have the shape *CaCC, CaCi, CaC:*.[261] They are mostly transitive, and can be used to derive causatives from stem I. Stem III causatives may be in free variation with stem II, but stem II causatives are much more frequent. Some examples follow.

Stem III verbs with the shape *CaCC, CaC:*

Verb	Translation	Variety	Notes
faṛaq /e/	separate, divide	K/S/H	Cf. *fṛaq* /e/ 'separate, divide'
samaḥ /e/	forgive	K/T/H/Z	Cf. *smaḥ* /e/ 'leave'
fahem	explain	K/S	Cf. *fhem* 'understand', *fehhem* 'explain'
rasel	correspond	K	Cf. *rsel* 'send a letter'
ṣaḷaḥ /e/	reconcile	pan-Snh.	Cf. *ṣḷaḥ* /e/ 'fix'
qadd, gadd	flatten	K/H, T/Z	Cf. *qedd* 'be equal'

The following verbs have the shape *CaCi* and may have the final *-i/a* alternation in some varieties:

Stem III verbs with the shape *CaCi*

Verb	Transl.	Variety	Verb	Transl.	Variety
laqi[262]	(make) meet	K/T/H/Z	ḥaḏi	touch	K/T/H/Z
wali, wayyi	touch, hit	K/T/Z, K/H	ḥaḏi	oversee	K/Z

3.3.7.2. Stem V (*t-* x Stem II: *tCC:C, tCC:V*)

Stem V has a prefix *t-* and derives an intransitive based on stem II (with the geminated C2), and can be often translated by the English passive.[263] This stem is frequent in Senhaja: there are over fifty examples in our database. In some exceptional cases, stem

[261] On stem III in Arabic, see e.g. Cuvalay-Haak 1997: 101-102. According to Cuvalay-Haak, "pattern III (*fāɛal*) verbs often describe activities which require the involvement of a human entity other than the Agent". See Vicente 2000: 88 on stem III in Moroccan Arabic. On stem III in Ghomara, see Mourigh 2015: 314.

[262] In Hmed and Zerqet, *laqi* can be used as synonymous of *tlaqi* 'meet', as well as synonymous of *slaqi* 'make meet'. In Ketama, *laqi* is 'make meet', while *tlaqi* is 'meet'.

[263] On stem V in Arabic, see e.g. Bulos 1965: 18, Cuvalay-Haak 1997: 103. Bulos 1965: 18 notes that the French reflexive offers a better translation.

V is applicable to native Berber verbs (Hmed variety, Section 3.3.7.8). Also, in Hmed, the prefix *t-* can be combined with the prefix *s-* that optionally precedes stem II verbs. Some examples follow.

1) Stem V verbs with corresponding stems I and II

The following examples are pan-Senhaja.

Base	**Transl.**	**Stem II**	**Transl.**	**Stem V**	**Translation**
ɛlem	inform	ɛellem	teach	tɛellem	learn
ġber	hide (intr.)	ġebber	hide (trans.)	tġebber	be made hidden
ɛmaṛ	be full	ɛemmeṛ	make full	tɛemmeṛ	be made full
fṛaḥ /e/	be happy	feṛṛaḥ /e/	make happy	tfeṛṛaḥ /e/	be made happy

2) Stem V and stem II verbs with Berber corresponding base verbs

In this group, stem II verbs are pan-Senhaja, while stem V verbs are not always found in all varieties. These stem V verbs are most frequent in Hmed.

Base	**Transl.**	**Stem II**	**Transl.**	**Stem V**	**Translation**
ḵšem	enter	deḫḫel	make enter	tdeḫḫel	be made enter
ḏeṣ	laugh	ḍeḥḥek	make laugh	tḍeḥḥek	be made laugh
ṭṭeṣ	sleep	neɛɛes	make sleep	tneɛɛes	be made sleep

3) Stem V derived from stem II with the Berber prefix *s-* (*tt-s-*CC:C)

As mentioned above (Section 3.3.2.4), many stem II verbs are optionally preceded by the Berber causative prefix *s-*. The passive prefix may be attached to such causatives. The resulting form usually coexists with the passive derivation of stem II without *s-*. Some examples follow (Hmed). The base can be cognate (as in *a*) or suppletive (as in *b*) to stems II and V.

Base	**Transl.**	**CAUS**	**Transl.**	**PASS of CAUS**	**Transl.**
a) base cognate to derived forms					
ḥlef	swear	sḥellef	make swear	ttesḥellef	be made swear
b) derived forms suppletive to the base					
ḏeṣ	laugh	sdeḥḥek	make laugh	ttesḍeḥḥek	be made laugh
mġuṛ	grow	skebbeṛ	make grow	tteskebbeṛ	be made grow

3.3.7.3. Stem VI (*t-* x Stem III: *tCaCC*)

This stem, as stem V, also contains the valency-decreasing prefix *t-*. While stem V is derived from stem II, stem VI is derived from stem III. Stem VI is usually the reflexive, medio-passive, or reciprocal of stem III.[264] Some examples follow.

Stem III	Translation	Stem VI	Translation	Variety
fahem	make understand	tfahem	understand each other	pan-Snh.
qatel	fight	tqatel	struggle (with smth.)	K/H
laqi	(make) meet	tlaqi/a	meet (each other)	pan-Snh.

3.3.7.4. Stem VII (*n-* x stem I: *n*-CCC)

The prefix *n(n)-* with Arabic stem I yields stem VII.[265] The following examples are pan-Senhaja.

Stem I	Translation	Stem VIII	Translation
ftaḥ /e/	open (trans.)	nneftaḥ /e/	open (intr.)
žraḥ /e/	wound	nnežraḥ /e/	be wounded

Sometimes, the base (stem I) is not used in Senhaja or in specific Senhaja varieties, and stem VII is suppletive to the native Berber verb, e.g.

Base	Translation	Stem VIII	Translation
ari[266]	write	nnekteb	be written

3.3.7.5. Stem VIII (the *-t-* infix: *CtCC*, *CtaCC*)

Stem VIII verbs have the infix *-t-* that is inserted between C1 and C2 of the root; the shapes are *CtCC* and *CtaCC*.[267] This stem, like the previous one, is derived from stem I and involves argument reduction. The semantics is less predictable that that of stem

[264] See Cuvalay-Haak 1997: 104 and Heath 2002: 355 on this stem in Arabic.

[265] On stem VII (*infaʿal*) in Arabic, see e.g. Cuvalay-Haak 1997: 104. This stem is usually described as the intransitive of the transitive stem I. It can be a passive, a medio-passive, or a reflexive. The prefix *n-* is not geminated in Arabic. Stem VII is not found in Ghomara (Mourigh 2015: 217).

[266] Stem I *kteb* 'to write' is used alongside *ari* in Seddat, Zerqet, and parts of Hmed.

[267] On stem VIII (*iftaʿal*) in Arabic, see e.g. Cuvalay-Haak 1997: 105. Heath 2002: 356 speaks about the shift in Moroccan Arabic from the infix *-t-* to the prefix *t-* and writes that this shift could be influenced by the passive prefix *t-* in Berber.

VII. This stem is rare in Senhaja, but there are a few examples. Some verbs have no cognate stem I counterparts in Senhaja.[268]

Stem I	Translation	Stem VIII	Translation	Variety
fṛaq /e/	separate, divide	fetṛaq /e/	become divided	K/S
ḫmeṛ	expand, ferment	ḫetmeṛ	expand, ferment	K
---		ktašef	discover	pan-Snh.
---		ɛtaṛef	admit	pan-Snh.

3.3.7.6. Stem IX (*CCaC*)

Stem IX is rare in Senhaja. Stem IX verbs have the shape *CCaC* and often describe colors and physical defects.[269] Some examples follow.

Stem IX	Translation	Variety
ḥmar	become red	K/T
ḥwal	be crooked	K/T/S/H
zhar	blossom	H

3.3.7.7. Stem X (prefix *st-*: *st-CCC*, *staCC*)

Stem X verbs have the prefix *st-*.[270] This derivation is not productive in the dialectal Arabic, and is only rarely found in Senhaja. Some examples follow: the verbs in *(a)* have stem I counterparts; the verb in *(b)* has no stem I counterpart. The verb in *(c)* has the shape *staCC* (biconsonantal root), while the other ones have the shape *stCCC* (triconsonantal root).

	Stem I	Translation	Stem X	Translation	Variety
(a)	ḫber	tell news	steḫber	tell news	H
	ḫḏem	work	steḫḏem	make work, use	K/T/H/S
	ɛžeb	please	steɛžeb	be amazed, astonished	pan-Snh.
	slem	become Muslim	steslem	surrender	pan-Snh.
(b)	---		steḫrež	get smth. out, remove	T/H
(c)	---		stanes	get used to	pan-Snh.

[268] The verb *ɛtaṛef* 'to admit' has a stem I counterpart in Arabic, *ɛṛef* 'to know', corresponding to the Berber *ssen* 'to know. In Senhaja, the stem II causative *ɛeṛṛef* is also borrowed.

[269] On stem IX (*ifɛall*) in Arabic, see Cuvalay-Haak 1997: 106.

[270] On stem X (*istafɛal*) in Arabic, see Cuvalay-Haak 1997: 106.

3.3.7.8. Arabic Stems: Special Cases

_t-_ x stem I (_t-CCC_)

In Senhaja, the prefix *n-* in many *n*-derived verbs can be freely substituted by the prefix *t-* without a change in meaning. The resulting derivation can be described as *t-* x stem I, e.g. *ttekteb* (alongside *nnekteb*) 'be written', *ttežraḥ* /e/ (alongside *nnežraḥ /e/*) 'be wounded'.[271] There may be a preference for the prefix *n-* or *t-* depending on the dialect and on the specific verb. In some cases, the prefix *n-* has a more medio-passive or reflexive interpretation, while *t-* has a more passive interpretation.

_n-_ x stem II (_n-CC:C_)

Similarly, the prefix *t-* in many *t*-derived verbs can be freely substituted by the prefix *n-*. The resulting derivation can be described as *n-* x stem II, e.g.

- *nḥelles* 'be saddled', passive of *ḥelles* 'saddle' (T/S/H);
- *nḫelleṣ* 'be paid', passive of *ḫelleṣ* 'pay' (T/S/H).

Hybrids _tn-, nt-, t+t_

The following verb has two prefixes, *t-* and *n-* (in varying order), or the prefix *t-* occurring twice:[272]

Base	**Transl.**	***t-* + *n-***	***n-* + *t-***	***t-* + *t-***	**Transl.**	**Variety**
ešš (K), ečč (T/S/H)	eat	ttenkel	nnetkel, nnetk̲el	ttetkel, ttetk̲el	be eaten	K/T/S/H

In Ketama, Seddat, and Hmed, the form *ttetkel* 'be eaten' also occurs. Cf. the discussion in Section 3.3.5.2 with the Berber equivalent *tmečč*.

Passives (V, VII, _t-_ x I, _n-_ x II) derived from Berber verbs (Hmed)

As mentioned above, stem V (*t-* x stem II) verbs are frequent in Senhaja (with ca. fifty examples in our database, most of them in Hmed), and a few examples of this derivation apply to the native Berber verbs (in Hmed). In this case, the double derivation (stem II causative and stem V on its basis) took place within Berber (PAT borrowing). Alongside stem V, three other passive derivations from the same base verbs are used with the same meaning: stem VII (*n-* x stem I: *n-CCC*), *t* x I (*t-CCC*), and *n-* x stem II (*nCC:C*). Examples follow (Hmed variety).

[271] On crossed patterns in Arabic, see Lentin *forthcoming*.

[272] On the hybrids *tn-*, *nt-* in Moroccan Arabic, see Heath 2002: 357.

Intransitive	Transitive	Passive/intransitive derivations based on stems I and II			
Base (intr.)	**II (trans.)**	**V (t- x II)**	**VII (n- x I)**	**t- x I**	**n- x II**
nġeḍ	*neġġeḍ*	*tneġġeḍ*	*nnenġeḍ*	*ttenġeḍ*	*nneġġeḍ*
be threshed	thresh	be threshed	be threshed	be threshed	be threshed
rkem	*rekkem*	*trekkem*	*nnerkem*	*tterkem*	*nrekkem*
be wet	make wet	be made wet	be made wet	be made wet	be made wet
bdeḍ	*beddeḍ*	*tbeddeḍ*	*nnebded*	*ttebdeḍ*	*nbeddeḍ*
stop	stop	be stopped	be stopped	be stopped	be stopped

3.3.8. Numbers and Productivity in Causatives and Passives

3.3.8.1. Numbers and Productivity of *s*-derivation vs. Stem II verbs

This section compares the productivity of *s*-derived and stem II verbs.[273] Our database includes 276 examples of both types:

1) 136 *s*-derived verbs (49%), and
2) 140 stem II verbs (51%).

Not all of them are semantically causatives. The numbers above demonstrate that stem II verbs are at least as frequent as *s*-derivation. These numbers cover Senhaja as a whole. The distribution is demonstrated in the following table.

Distribution of *s*-derived vs. stem II verbs in Senhaja

	Ketama	Hmed	Zerqet	All Snh.
***s*-derived**	23 (25,5%)	64 (43%)	66 (54%)	136 (49%)
stem II	67 (74,5%)	86 (57%)	56 (46%)	140 (51%)
Total	90	150	122	276

In Hmed (Central Senhaja), among 150 verbs of both types, there are: 64 *s*-derived verbs (43%), and 86 stem II verbs (57%). For Ketama, the numbers are (among 90 in total): 23 *s*-derived (25,5%), and 67 stem II (74,5 %). That is, in Ketama, stem II verbs are three times as frequent as *s*-derivation. For Zerqet, among 122 verbs in total, we find 66 *s*-derived (54%), and 56 stem II (46%). That is, only in Zerqet/Eastern Senhaja, *s*-derivation is more frequent than stem II derivation, and even there, the difference is not huge.

[273] Only those verbs that have a base counterpart of some sort were counted. Thus, frozen *s*-causatives are omitted from the count, as are stem II verbs without a corresponding base (cognate or suppletive).

As mentioned previously, stem II verbs are of two kinds: cognate to the base verb (derived from the same root), or suppletive to it. The distribution is as follows:

Cognate vs. suppletive stem II verbs in Senhaja

Stem II	**Ketama**	**Hmed**	**Zerqet**	**All Snh.**
Cognate	37 (55%)	61 (71%)	39 (70%)	107 (76%)
Suppletive	30 (45%)	25 (29%)	17 (30%)	33 (24%)
Total	67	86	56	140

This table shows that suppletive causatives constitute ca. 45% of stem II verbs in Ketama, and ca. 30% in Hmed and Zerqet. The following table shows numbers of *s*-derived, cognate stem II, and suppletive stem II verbs.

***S*-derived, cognate stem II, and suppletive stem II verbs**

	Ketama	**Hmed**	**Zerqet**	**All Snh.**
***s*-derived**	23 (25,5%)	64 (42,5%)	66 (54%)	136 (49%)
stem II cognate	37 (41%)	61 (41%)	39 (32%)	107 (39%)
stem II suppl.	30 (33,5%)	25 (16,5%)	17 (14%)	33 (12%)
Total	90	150	122	276

The above table gives an idea of what role suppletion plays in different Senhaja varieties. In Ketama, suppletion constitutes a third of all verbs in this category, with cognate stem II verbs being the most frequent type, and *s*-derived verbs being in the minority. In Hmed, the suppletive verbs are in the minority, with *s*-derived verbs being about as frequent as cognate stem II. In Zerqet, suppletive stem II verbs are even a smaller minority than in Hmed, with *s*-derived verbs being the most frequent type (constituting over a half of all verbs in this category).

The above numbers cover all *s*-derived and stem II verbs in our database, including those that are not causatives, strictly speaking. If we focus on canonical (semantic) causatives, we acquire the following picture:

***S*-derived vs. stem II causatives in Senhaja**

	Ketama	**Hmed**	**Zerqet**	**All Snh.**
***s*-derived**	14 (20%)	31 (32%)	41 (47%)	68 (46%)
stem II	56 (80%)	65 (68%)	47 (53%)	81 (54%)
Total	70	96	88	149

It is clear that the percentage of stem II causatives grows gradually from Eastern Senhaja (53% of all causatives) to Western Senhaja (80% of all causatives). The distribution of cognate vs. suppletive stem II (canonical) causatives is as follows:

Stem II cognate vs. suppletive causatives in Senhaja

Stem II	Ketama	Hmed	Zerqet	All Snh.
Cognate	26 (46%)	40 (61,5%)	30 (64%)	48 (59%)
Suppletive	30 (54%)	25 (38,5%)	17 (36%)	33 (41%)
Total	56	65	47	81

This table shows that suppletive causatives constitute ca. 41% of stem II causatives in Senhaja, with percentage being lower in Zerqet (36%) than in Ketama (54%). The following table shows numbers and percentage of three kinds of causatives: *s*-derived, cognate stem II, and suppletive stem II.

***S*-derived, cognate stem II, and suppletive stem II causatives**

Causatives	Ketama	Hmed	Zerqet	All Snh.
***s*-derived**	14 (20%)	31 (32%)	41 (47%)	68 (46%)
stem II cognate	26 (37%)	40 (42%)	30 (34%)	48 (32%)
stem II suppl.	30 (43%)	25 (26%)	17 (19%)	33 (22%)
Total	70	96	88	149

The above table demonstrates that in Ketama, suppletive causatives are twice as frequent as *s*-derived causatives, while this is not the case in Hmed or Zerqet, where suppletive causatives are rarer. Only in Zerqet, *s*-derived causatives are the majority, constituting 47% of all causatives. In Hmed, the majority (42%) is constituted by stem II cognate causatives. The ubuquity of this type of causatives in Hmed is most likely what allowed for an occasional system swap (PAT borrowing), i.e. applying this morphological pattern to the native material.

3.3.8.2. Numbers and Productivity of Passive Constructions

This section compares the productivity of different kinds of passives. Our database includes 366 passives of all types:

I. Cognate to the base				II. Suppletive	
Prefix	**Number**	**Prefix**	**Number**	**Prefix**	**Number**
t-	239	*ttya/ṭṭuya/ttwa-*	24	*t-*	12
n-	76	*m-*	3	*n-*	11
				ttya/ttwa-	2

These numbers cover Senhaja as a whole. The distribution among the three selected Senhaja varieties is demonstrated in the following table.

Different kinds of passives in Senhaja

	Ketama	**Hmed**	**Zerqet**	**All Snh.**
t-	59 (56%)	177 (69%)	84 (60%)	239 (65%)
n-	26 (25%)	58 (22,5%)	34 (24%)	76 (21%)
ttya-~ṭṭuya-~ttwa	5 (5%)	5 (2%)	14 (10%)	24 (6,5%)
m-	---	2 (1%)	3 (2%)	2 (0,5%)
suppletive	15 (14%)	14 (5,5%)	6 (4%)	25 (7%)
-with *n-*	-8	-6	-2	-11
-with *t-*	-6	-8	-3	-12
-with *ttya/ttwa-*	-1	---	-1	-2
Total	105	256	141	366

The table demonstrates that passives are usually derived by means of the prefix *t-* in Senhaja, which is more frequent than the prefix *n-* in all Senhaja varieties. Derivation with the prefix *n-* is the second most productive passive derivation in Senhaja (constituting ca. a quarter of all passives). Following is the derivation with the native prefixes *ttya-/ṭṭuya-/ttwa-*. Here, we observe dialectal preferences: in Zerqet, the native prefix constitutes 10% of all passives, while this number is lower in Hmed and Ketama. With suppletive passives, there are also dialectal differences. This type of passives is more frequent in Ketama (14%) than in Zerqet (4%). As regards derivation by means of the prefix *m-*, this has not been found in Ketama (no examples in our database), and is very marginal in Hmed and Zerqet.

The following table compares suppletive passives and suppletive causatives in Senhaja.

Suppletive passives and causatives in Senhaja

	Ketama	**Hmed**	**Zerqet**	**All Snh.**
Passives	15 (14%)	14 (5,5%)	6 (4%)	25 (7%)
Causatives	30 (43%)	25 (26%)	17 (19%)	33 (22%)

The table demonstrates that suppletive causatives are more frequent than suppletive passives per each variety and for Senhaja as a whole, and the percentage of suppletion (of all passives and all causatives) is generally rising from Eastern Senhaja (Zerqet) to Western Senhaja (Ketama).

3.3.9. Combination of Derivations

3.3.9.1. Introduction

Combining derivational processes is possible to some extent in Senhaja. However, most examples involve *t*-derived passives of stem II causatives, which corresponds to stem V in Arabic. Such forms are most likely directly borrowed from Arabic. However, examples with native Berber verbs are also found (Hmed), and in this case, derivation must have taken place within Senhaja (Section 3.3.7.8).

The combination of derivational prefixes (passive + causative, or, very rarely, causative + passive) is also found, to a varying extent in different Senhaja varieties. Nearly all examples of combined passive and causative prefixes come from Hmed, just as stem V verbs mentioned above, or the combination of the passive prefix *t-* with stem II causatives of native Berber verbs. Two derivational prefixes can revert transitivity, e.g. when a passive prefix that functions as an "intransitivizer" is combined with a causative prefix that functions as a "transitivizer", e.g. (the following base verbs are intransitive):

- *nez* 'be sold' > *znez* 'to sell' > *tteznez* 'be (made) sold' (K);
- *mġuṛ* 'grow' > *ssemġuṛ* 'make grow' > *ttessemġuṛ* 'be made grow' (H).

The resulting double-derived verb is close in meaning to the base form, but not identical to it, as it implies an external agent (a basically intransitive verb is contrasted with a derived passive).

In the following chain, the situation is different, since here, a causative prefix that functions as a "transitivizer" is combined with a medio-passive prefix that functions as an "intransitivizer"; the base verb is labile:

- *ṛẓem* ‘to release = be released’ > *nnuṛẓem* ‘become/get released’ > *snuṛẓem* ‘make released’ (Z, dialectal).[274]

The above verb is the only example of a causative prefix combined with the prefix *n(n)-* in our database. All the remaining examples involve passives of causatives.

3.3.9.2. Passives of s-derived Causatives

Practically all examples of passives derived from *s*-causatives in our database come from Hmed. Combinations of two derivational prefixes are extremely rare in other parts of Senhaja (unless it is a frozen passive or causative). In Hmed, *s*-derived verbs can take the passive prefixes *t(t)-* or *n(n)-*, which are in free variation.

Combination of *t-~n-* (passive) and *s-* (causative) prefixes in Hmed

Base	Transl.	CAUS	Transl.	PASS of CAUS	Transl.
bzi	be wet	ssebzi	make wet	ttessebzi~nnessebzi	be made wet
ḏeṣ	laugh	ṣḏeṣ	make laugh	tteṣḏeṣ~nneṣḏeṣ	be made laugh
hyeḵ	be sick	ssehyeḵ	make sick	ttessehyeḵ~nnessehyeḵ	be made sick
ḵšem	enter	sseḵšem	make enter	ttesseḵšem~nnesseḵšem	be made enter
mġuṛ	grow	ssemġuṛ	make grow	ttessemġuṛ~nnessemġuṛ	be made grow
ṭṭeḏ	nurse	ssuḏeḏ	nurse	tteṣṣuḏeḏ~nneṣṣuḏeḏ	be made nurse

The only double derivation (passive of causative) in Ketama in our database is a passive derived from the causative on the basis of a patientive verb ‘to be sold’ mentioned above.[275]

Base	Transl.	CAUS	Transl.	PASS of CAUS	Transl.
nez	be sold	znez	sell	tteznez~nneznez	be made sold

[274] The derivation *nnuṛẓem* is medio-passive (no external Agent implied), cf. the true passive *tteṛẓem* (an extern Agent is implied). The addition of the causative prefix makes the prefix *nn-* degeminated.

[275] The forms *tteznez, nneznez* are also used in Hmed. The difference is that the base verb *nez* is not used in Hmed and hence, these forms are synchronically passives of the base verb *znez* ‘to sell’ in this variety.

3.4. PNG (Person, Number, Gender) Subject Marking

Verbal subject PNG markers express the person (first, second, and third), number (singular and plural), and gender (masculine and feminine) of the subject. In most Senhaja varieties with the exception of Easternmost Senhaja (Zerqet and Mezduy), the gender is marked only in the third person singular. Zerqet and Mezduy allow for gender marking also in 2P and 3P. The affixes appear both before (prefixes) and after (suffixes) the stem. There are different sets of subject affixes:[276]

1) the normal set;
2) the imperative and injunctive;
3) the relative form ("the Berber participle").

There is some interaction between the PNG marking and the MAN (Mood, Aspect, and Negation).

3.4.1. Normal Conjugation

3.4.1.1. Overview of the PNG Markers

There is a relative homogeneity in the PNG subject marking of Berber languages.[277] In Senhaja, some PNG markers show variation as a result of phonological changes and reanalysis. The following table shows Senhaja PNG marking system. The table covers all contexts (all MA(N) stems: Aorist, Perfective, Imperfective, including the negation contexts). The marking is slightly different in the Aorist following the irrealis particle *a(d̲)* (due to its assimilation to the following 2S/3FS/2P verb prefix) and, on the other hand, in the Perfective and Imperfective. The "X" stands for the verb stem.

Following the scheme is the conjugation of the verb *k̲rez* 'to plow' in the Aorist following the irrealis particle *a(d̲)* (glossed NR) ('I will plow', 'You will plow', etc.) and in the Perfective (positive) without any preverbal element ('I plowed', 'You plowed', etc.).[278] The Aorist and the Perfective stems coincide for this verb.

[276] On conjugated adjectives, see Section 7.4.

[277] Compare Kossmann 2012: 46; Lafkioui 2008c. For a general overview of PNG marking in Berber, see e.g. Galand 1994.

[278] While the irrealis marker is not part of the PNG marking, it is included in the examples as it has influence on the realization of the PNG affixes. Cf. Appendix 5 for the PNG marking sets (and examples) in Senhaja, and https://academia.li/gutova/png-marking-paradigms for the complete paradigms in different aspects and varieties.

Senhaja PNG marking (Aorist/Perfective/Imperfective)

	Pfx	Stem	Sfx	Notes
1S		X	-aġ, -a, -ġ	Most Snh. *-aġ*, Ketama/most Taghzut *-a*; *-ġ* for V-final stems (including Ketama)
2S	t-, ṯ-, a/h-	X	-ḏ	*t-* in AOR following *a(ḏ)*; PERF/IPF: *ṯ-* in most Snh., *h~a(h)-* in Ketama/most Taghzut
3MS	y-, i-, ḏ-/Ø	X		*ḏ-* or "zero" in most Snh. (except Ketama and Zerqet) in marked contexts (irrealis, negation)
3FS	t-, ṯ-, a/h-	X		3FS prefix = 2S prefix
1P	n-	X		
2P	t-, ṯ-, a/h-	X	-m	2P prefix = 3FS and 2S prefix
2FP	t-, ṯ-	X	-mt	Zerqet, Mezduy; cf. 2S prefix
3P		X	-n	
3FP		X	-nt	Zerqet, Mezduy

Conjugation in the Aorist and the Perfective

Conjugation in the Aorist						**Conjugation in the Perfective**				
1S	a		ḳerz	-a	K/T	**1S**		ḳerz	-a	K/T
	a		ḳerz	-aġ	most Snh.			ḳerz	-aġ	most Snh.
2S	a	t-	ḳerz	-eḏ	pan-Snh.	**2S**	a/h-	ḳerz	-eḏ	K/T
							ṯ-	ḳerz	-eḏ	most Snh.
3MS	a	y-	ḳrez		K	**3MS**	i-	ḳrez		pan-Snh.
	a	ḏ-	ḳrez		T/S/H					
	aḏ	i-	ḳrez		B/Z					
3FS	a	t-	eḳrez		pan-Snh.	**3FS**	a/h-	eḳrez		K/T
							ṯ-	eḳrez		most Snh.
1P	a	n-	eḳrez		pan-Snh.	**1P**	n-	eḳrez		pan-Snh.
2P	a	t-	ḳerz	-em	pan-Snh.	**2P**	a/h-	ḳerz	-em	K/T
							ṯ-	ḳerz	-em	most Snh.
2FP	a	t-	ḳerz	-emt	Z	**2FP**	ṯ-	ḳerz	-emt	Z
3P	a		ḳerz	-en	pan-Snh.	**3P**		ḳerz	-en	pan-Snh.
3FP	a		ḳerz	-ent	Z	**3FP**		ḳerz	-ent	Z

Compare the PNG marking system employed in Tarifiyt (Lafkioui 2008c). The Tarifiyt system represents the situation close to the original in Senhaja.

Tarifiyt PNG marking

1S		X	-ġ (~-ẖ)	**1P**	n-	X	
2S	ṯ-	X	-ḏ	**2P**	ṯ-	X	-m
3MS	y/i-	X		**2FP**	ṯ-	X	-nt/mt/mṯ/m
3FS	ṯ-	X		**3P**		X	-n
				3FP		X	-nt/n

The following features are shared by Senhaja with most other Berber languages:

- All finite verbs have PNG marking: prefixes (3MS, 3FS, 1P), suffixes (1S, 3P), or circumfixes (2S, 2P);
- Verb affixes carry information about the person (1/2/3), the gender (masculine/feminine), and the number (singular/plural);
- There is no gender distinction in 2S (unlike in the pronominal system);
- Gender is distinguished in 3S.

Senhaja PNG marking has the following features:

- 2S suffix is *-ḏ* (that has developed from *d* as a result of spirantization);
- In most Senhaja varieties, gender is distinguished in verb forms only in the third person singular. In Eastern Senhaja (Zerqet and Mezduy), gender can be (optionally) distinguished in 2P and 3P verb forms.[279] In this case, the FP form refers to a group of females or feminine objects. In the rest of Senhaja, the 2P and 3P verb forms are unmarked for gender.

In principle, PNG affixes are nearly the same for all verbs. Some differences depending on the verb type and preverb are discussed below (Section 3.4.1.2). Additionally, there is variation in the placement of the schwa (cf. Section 2.2.3.2):

- Triradical verbs (CCC) have schwa following the PNG prefix (except for 3MS), e.g. (most Snh.) *ṯ-eḵšem* ‘she entered’ (Ketama/Taghzut *(a)h-eḵšem*).
- Verbs starting in a vowel have no schwa following the prefix, e.g. (most Snh.) *ṯ-usi* ‘she lifted’ (Ketama/Taghzut *(a)h-usi*).
- Verbs starting in CV- (including Ce-) likewise have no schwa following the prefix, e.g. (most Snh.) *ṯ-sellem* ‘she greeted’ (Ketama/Taghzut *(a)h-sellem*).

When PNG affixes are added to the stem, this can lead to the resyllabification in the stem, e.g. (pan-Snh.) *ḵšem* ‘enter’, *ḵešm-en* ‘they entered’.

[279] On gender distinction in these forms, see Lafkioui 2007a: 168 (maps 201-202).

PNG marking in Senhaja varies according to the verb characteristics, as well as the presence/absence of the preverbal and postverbal MAN markers and clitics (pronominal and ventive).[280]

3.4.1.2. Variation in Senhaja PNG Marking

This section discusses the variation in Senhaja PNG markers in different contexts, types of verbs, and dialects. The 1P prefix *n-* and the 3P suffix *-n* are not discussed here, as they remain invariable in Senhaja. The variable markers include: 1S suffix (originally **eġ*), 2S/3FS/2P prefix (originally *t-*), and the marking of 3MS (originally *i/y-*). The section concludes with some notes on the reanalysis of the original *-ḏ* of the irrealis marker.

1S suffix (*-aġ, -a, -ġ*)

The 1S subject suffix is originally (and can be argued to be still underlyingly) *-eġ* (as in Tarifiyt, cf. above). As *e* is realized as *a* before *ġ* in most varieties (cf. Section 2.2.3.1), the 1S marker is realized as *aġ* in most cases in these varieties (except Mezduy, the Wersan dialect of Zerqet, and the Lqela dialect of Taghzut). The final consonant is dropped in Ketama and in Taghzut outside Lqela when the verb is not followed by a postverbal negation particle or a clitic. In the rest of Senhaja, the final *-ġ* is realized (albeit weakly). When there is a postverbal negation particle or a clitic, the final *-ġ* is also present in Ketama and Taghzut. Also, if the verb stem ends in vowels *i* or *u* (indicated as "V-final" in the tables below, i.e. a verb stem ending in a vowel), the 1S marker is *-ġ*. The following examples demonstrate the different realizations of 1S subject marker in Ketama depending on the verb stem (C-final vs. V-final).

1S marker in Ketama

1S *-a* (C-final)	**Translation**	**1S *-ġ* (*i*-final)**	**Translation**	**1S *-ġ* (*u*-final)**	**Translation**
saway-a	'I speak'	*ddi-ġ*	'I went'	*š-a ddu-ġ*	'I will go'
š-a sw-a	'I will drink'	*zyi-ġ*	'I slaughtered'	*š-a zyu-ġ*	'I will slaughter'
ḵešm-a	'I entered'	*ẓẓi-ġ*	'I planted'	*š-a ẓẓu-ġ*	'I will plant'

In some varieties (e.g. Ketama), the final *-ġ* of 1S marker is realized as *ḥ* when it assimilates to the third person DO clitics (cf. Section 14.3.1.2). 1MS *-ḥ* is also encountered in some Tarifiyt varieties, sometimes in free variation with *-ġ* (cf. Lafkioui

[280] The PNG markers are not directly linked to the MA(N) stems. Rather, their realization is linked to the preverbal and postverbal markers. Cf. Section 5.2.

2008c). 1S marker is *-aḥ* in Ghomara (~ *ḥ* following a vowel) and *-aġ* when followed by a by a vowel or a voiced consonant (Mourigh 2015). Thus, 1S *-ġ* and *-ḥ* are found both in Senhaja and Ghomara, but in different contexts: in Senhaja, *-ġ* is the default realization, while *-ḥ* is the result of devoicing. In Ghomara, *-ḥ* is the default realization, while *ġ* is the result of voicing.

2S/3FS/2P prefix (*t-, ṯ-, h-*)

There is one prefix common to 2S, 3FS, and 2P verb forms. 2S is distinguished by its suffix *-ḏ*, and 2P by its suffix *-m* (3FS has no suffix, and is marked by the prefix alone). A characteristic feature of Senhaja is that the 2S/3FS/2P prefix has different realizations in the Aorist following the irrealis marker *aḏ* and in the Perfective/ Imperfective.

The original prefix of 2S/3FS/2P is **t-*, which became *ṯ-* in most Senhaja varieties as a result of spirantization. This realization of the prefix is found in Perfective and Imperfective (positive and negative). In Ketama and in Taghzut dialects outside Lqela, the spirantized *ṯ-* further developed into *h- ~ a(h)-* as a result of stage 2 spirantization (cf. Section 2.1.4.2). The variant *h-* is preferred in Beni Aisi dialect of Ketama, while *a(h)-* is preferred in Beni Hmed dialect of Ketama, e.g.

- *h-eḵrez* (Beni Aisi) ~ *a(h)-ḵrez* (Beni Hmed) 'she plowed'.

In Beni Aisi, the prefix is realized as *a-* when the verb stem starts in *h-*, e.g. *a-herq-eḏ* 'you (2S) threw away'.

In the Aorist, following the irrealis marker *a(ḏ)* or the future *š-a(ḏ)* (which contains the irrealis marker *a(ḏ)*), 2S/3FS/2P prefix is *t-* (not spirantized) in all Senhaja. This is a result of assimilation: *aḏ + ṯ > atˆt > aˆt.*[281] Consider the following examples:

(1) *ṯ-eḵrez* (most Snh.)
h-eḵrez ~a-ḵrez (K/T)
3FS-plow:P
'She plowed.'

(2) *š-a ˆt-eḵrez* (pan-Snh.)
FT-NR ˆ3FS-plow:A
'She will plow.'

[281] Following the fronted ventive clitic *d* (Section 14.3.2), the prefix is fully assimilated to the ventive, e.g. *š-a dˆeḵšem* 'She will enter (here).'

To sum up, the original prefix *t-* became *ṯ-* (> *h~a-*) in Senhaja as a result of spirantization, but is realized as *t-* in the Aorist following *a(ḏ)* as a result of assimilation.

In many Senhaja varieties, the prefix is fully assimilated to the following *t-* (or *ṭ*) of the verb (whether of the verb stem or the Imperfective prefix). Thus, in Taghzut and Hmed, the 2S/3FS/2P prefix is assimilated to the Imperfective prefix *ṭ-*, e.g. *ṭasi* 'she lifts', *ṭasi-ḏ* 'you (SG) lift', *ṭasi-m* 'you (PL) lift'. In Bunsar, the assimilation of the prefix *ṯ-* to *t-* of the verb is optional: *(ṯ-)tasi* 'she lifts'.

In the consecutive Aorist forms that are not preceded by *(š)a(ḏ)*, the 2S/3FS/2P prefix in Ketama is *(h)a-*. Consider the following example from a Ketama fairy tale about an ogress:[282]

(3) *šš=* *as* *lḥem* *nnes,* *iḍaren* *nnes,*
eat:IMP:SG=3S:IO meat POSS.3S legs POSS.3S
a-šš-aḏ= *as* *kulši*
2-eat:A-2S=3S:IO everything
'Eat his meat, his legs, eat everything (to his detriment)!'

3MS marker (*i/y*, *ḏ-* or Ø)

The 3MS verb subject prefix has different realizations depending on the variety, the formal characteristics of the verb (C-initial vs. V-initial), and the context (unmarked: positive Perfective and Imperfective vs. marked: future/irrealis, negation, relative clauses/focalization, all introduced with special preverbal markers that have influence on the realization of the subject prefix).

a) C-initial verbs

The original 3MS prefix in Berber is *i-/y-*, as is still found in Ketama. The *y-* is found after a vowel, e.g. after the irrealis marker *a*, the future marker *š-a*, the relative marker *a*, or the negator *u*, e.g. (Ketama)

(4) *i-ḵrez* (K)
3MS-plow:P
'He plowed.'
(5) *š-a* *y-eḵrez* (K)
FT-NR 3MS-plow:A
'He will plow.'

[282] In the form *a-šš-aḏ=as*, the 2S suffix is realized as *-aḏ* (rather than *-eḏ*) due to a constraint on the schwa in an open syllable. Cf. Section 14.3.1.1.

While *i/y-* as 3MS prefix is found in Perfective and Imperfective (positive) verb forms throughout Senhaja, the prefix is realized differently in "marked" contexts – namely, in the Aorist following the future/irrealis *(š)a(ḏ)*, and in Perfective Negative following the negator *u(ḏ) ~ ur*, depending on the variety. Thus, Taghzut, Seddat, and Hmed varieties have *ḏ-* as 3MS marker in these contexts, e.g. *šaḏeḵrez* (T/S/H) 'He will plow.'

There are two possible ways to analyze (and segment) this sequence:

(a) *š-a* *ḏ-eḵrez*
FT-NR 3MS-plow:A
➔ the irrealis particle is *a*, and *ḏ* is the innovative 3MS marker

(b) *š-aḏ* *Ø-eḵrez*
FT-NR 3MS-plow:A
➔ *ḏ* is a part of the irrealis particle and Ø is a 3MS marker

Both analyses are possible synchronically, while diachronically, *ḏ* is originally part of the irrealis marker that came to interact with the 3MS marker: *š-aḏ y-eḵrez* or *š-aḏ i-ḵrez* > *šaḏeḵrez* 'He will plow.'

In the Perfective Negative, the same *ḏ* is found that must have been reanalyzed and introduced from the irrealis particle *aḏ*, e.g. *uḏeḵrezš* (T/S/H) 'He did not plow.'[283] Again, there are two possible analyses:

(a) *u* *ḏ-eḵrez* *š*
NEG 3MS-plow:P NEG
➔ the irrealis particle is *u*, and *ḏ* is a 3MS marker

(b) *uḏ* *Ø-eḵrez* *š*
NEG 3MS-plow:P NEG
➔ *ḏ* is a part of the negation marker and Ø is a 3MS marker

In Seddat, some dialects (Azila, Asaka, Tamedda) have *ḏ* (following the negator *u*, as illistrated above), while some dialects (Tidwin, Talarwaq, Takerkurt) have Ø following the negator *ur*:

(6) *ur* *eḵrez* *š* (S-Tidwin)
NEG 3MS:plow:P NEG
'He did not plow.'

[283] This realization is found in e.g. Azila, Asaka, Talarwaq, and Tamedda dialects of Seddat, vs. Tidwin (cf. below).

In the Imperfective Negative, the 3MS is *y-* following the negator *ula*, e.g.

(7) *ula* *y-ḵerrez* *š* (T/H/S-Tidwin)
NEG 3MS-plow:I NEG
'He does not plow.'

In some dialects of Seddat (Azila, Asaka), the preverbal negator in the Perfective and Imperfective is the same, and hence the 3MS prefix is realized in the same way:

(8) *u* *ḏ-ḵerrez š* (S: Azila, Asaka)
NEG 3MS-plow:I NEG
'He does not plow.'

In the present work, we consider *ḏ* as part of the preverbal marker only in cases where the 3MS prefix is marked with *i-/y-* (as in Zerqet), e.g.

(9) *š-aḏ* *i-ḵrez* (Z)
FT-NR 3MS-plow:A
'He will plow.'

In other cases, we analyze *ḏ-* as an innovative 3MS marker (Taghzut, Seddat, Hmed):

(10) *š-a* *ḏ-eḵrez* (T/S/H)
FT-NR 3MS-plow:A
'He will plow.'

In Bunsar, in 3MS verb forms in marked contexts, both *ḏ* and the following *i* are optional. In other words, 3MS marker can be realized either as *i-* (when following *ḏ*) or as zero (when not following *ḏ*), e.g.

(11) *š-aḏ* *i-ḵrez* ~ *š-a* *ḵrez* (B)
FT-NR 3MS-plow:A ~ FT-NR 3MS:plow:A
'He will plow'.

The following table compares the different realizations of the 3MS verb subject prefix with a C-initial verb *ḵrez* (Aorist = Perfective; Imperfective *ḵerrez*) 'to plow' in different varieties and contexts.

3MS verb subject prefix with the verb *ḵrez* 'plow'

Ketama	Taghzut/Seddat/Hmed	Bunsar/Zerqet	Translation
i-ḵrez	i-ḵrez	i-ḵrez	He plowed
u y-eḵrez š	u ḏ-eḵrez š (T/S/H) ur Ø-eḵrez š (S)	u(ḏ i-)ḵrez š (B) uḏ i-ḵrez š (Z)	He did not plow
u y-ḵerrez š	ula y-ḵerrez š (T/S/H) u(ḏ) ḵerrez š (S)	u(ḏ i-)ḵerrez š (B) uḏ i-ḵerrez š (Z)	He does not plow
š-a y-eḵrez	š-a ḏ-eḵrez	š-a(ḏ i-)ḵrez (B) š-aḏ i-ḵrez (Z)	He will plow

b) V-initial verbs

When a verb stem starts in a vowel, 3MS marker is realized as *y-* throughout Senhaja in the context of the Aorist. Variation is found in the preverbal *ḏ*, which is present in most Senhaja varieties, but absent in Ketama, e.g.

(12) *š-aḏ* *y-asi* (most Snh: Taghzut/Seddat/Hmed/Bunsar/Zerqet)
š-a *y-asi* (Ketama)
FT-NR 3MS-lift:A
'He will lift.'

In Perfective (positive), with *u*-initial verbs, the 3MS prefix is realized as *i-* in Ketama and Seddat, and the vowel *u* of the verb stem is realized as *w* (as sequences of two vowels are not permitted, cf. Section 2.4.2), e.g.

(13) *i-wri* (K/S)
3MS-write:P
'He wrote.'

In Hmed, in this case, the vowel *u-* of the verb stem normally remains unaltered, while the 3MS subject prefix is realized as *y-*: *y-uri* 'He wrote.' Both realizations are found in Taghzut, Bunsar, and Zerqet: *i-wri*~ *y-uri* 'He wrote.'

In the negated Perfective, the 3MS marker with V-initial verbs is *i-/y-* in most varieties (also as one possibility in Taghzut), alongside a "zero" marker in Taghzut and some dialects of Seddat, while other dialects of Seddat have *ḏ-*, e.g.[284]

[284] As mentioned above, some Seddat dialects (Azila etc.) have 3MS *ḏ-* following the negator *u*, while others (Tidwin etc.) have Ø following the negator *ur*.

(14) *u* *y-usi* *š* (K)
uḏ *(y-)usi* *š* (T)
uḏ *y-usi* *š* (H)
uḏ *i-wsi* *š* (B/Z)
u *ḏ-usi* *š* (S: dialectal) ~ *ur* *usi* *š* (S: dialectal)
NEG 3MS-lift:P NEG ~ NEG 3MS:lift:P NEG
'He did not lift.'

The Imperfective stem of V-initial verbs is formed with the prefix *tt-* (Ketama) ~ *ṭ-* (Taghzut/Hmed), *t-* (Seddat/Bunsar/Zerqet), which makes the stem C-initial.[285] In this case, the 3MS subject prefix is realized as with other C-initial stems. The following table compares the different realizations of the 3MS verb subject prefix with a V-initial verb *ari* (Perfective *uri*) 'to write' in different varieties and contexts.

3MS verb subject prefix with the verb *ari* 'write'

Ketama	Taghzut/Seddat/Hmed	Bunsar/Zerqet	Translation
i-wri	i-wri (T/S) y-uri (T/H)	i-wri ~ y-uri	He wrote
u y-uri š~ i-wri š	uḏ (y-)uri š (T) u ḏ-uri š ~ ur uri š (S) uḏ y-uri š (H)	uḏ i-wri š	He did not write
š-a y-ari	š-aḏ y-ari	š-aḏ y-ari	He will write

Reanalysis of *ḏ* of the irrealis marker

The final *-ḏ* of the irrealis marker *aḏ* became reinterpreted and generalized to new contexts, such as the Perfective Negative (following the negation marker *u*).[286] In the majority of Senhaja, it is currently found (in a non-assimilated form) only with V-initial verbs in verb forms lacking a prefix (1S and 3P), e.g. (pan-Snh.)[287]

(15) *š-aḏ* *asi-ġ*
FT-NR lift:A-1S
'I will lift.'

[285] Thus, for the verb *ari* 'to write', the Imperfective stem is *ttari* (Ketama), *tari* (Seddat/Bunsar/Zerqet), *ṭari* (Taghzut/Hmed).

[286] Similar facts are found in Jerba (Brugnatelli p.c.) and in some dialects of Chaouia (Lafkioui & Merolla 2002).

[287] In parts of Zerqet, *ḏ* may be found in the same contexts also with C-initial verbs, e.g. *š-aḏ ḵerz-aġ* 'I will plow'.

(16) *uḏ* *usi-ġ* *š*
NEG lift:P-1S NEG
'I did not lift.'

In the assimilated form, *ḏ* is also found with the 2S/3FS/2P subject prefix *ṯ-* (that is realized as *t-* following *aḏ*): *aḏ* + *ṯ* > *aˆt-*. As described in the preceding section, *ḏ* can also be analyzed as a 3MS verb subject prefix in specific contexts.

3.4.2. The Imperative, Prohibitive, and Injunctive

3.4.2.1. The Imperative

The Imperative has a specific PNG marking. The singular form has no PNG affixes. As the plural form is marked by the suffix, the singular form can be said to contain a zero suffix. There are two main IMP:PL suffixes in Senhaja which form an isogloss (cf. Section 1.8.2.2). The suffix *-aṯ* is used in Western Senhaja (Ketama, Taghzut, Seddat), while the suffix *-(e)ṯ* appears in Central/Eastern Senhaja (Hmed, Bunsar, Zerqet, Mezduy).[288] Additionally, especially in combination with the ventive clitic *d*, the suffix *-(e)m* is employed in the IMP:PL in Zerqet and Mezduy. Some verbs accept the suffix *-em* more easily than others (while the suffix *-(e)ṯ* is always possible). Thus, the verb *ḵšem* 'to enter' usually takes the IMP:PL form *ḵešm-eṯ*, while *ḵešm-em* is very rare, unless it appears in combination with the ventive: *ḵešm-em=d* 'Enter (here)!' (Z/M).[289] Zerqet can optionally distinguish between the MP (*-eṯ*~*em*) and FP (*-eṯ*~*-em* ~*-emt*) Imperative forms, while in the rest of Senhaja, the plural form is unmarked for gender.[290] The scheme and examples follow.

[288] There exists variation in IMP:PL suffix also within Tarifiyt. See Lafkioui 2008c, Table 1, and Lafkioui 2007a, maps 203-204 for the forms and distribution. Outside Senhaja, the suffix *-aṯ* is also found in some dialects of the Middle Atlas (Taïfi 1992), Tashelhiyt, Awjila (Van Putten 2013), and in Ghomara, where next to *-aṯ,* the form *-aweṯ* is also found (Mourigh 2015).

[289] The verbs *siwel* 'to speak', *ḵrez* 'to plow', *ari* 'to write', *ttru* 'to cry' also usually take the suffix *-ṯ* rather than *-m.* in IMP:PL. The verbs *ġenna* 'to sing' and *ali* 'to ride' accept both *-ṯ* and *-m.*

[290] This possibility exists also in Mezduy, where, however, the suffix *-mt* is realized as voiced *(-md)* because of the assimilation, thus coinciding with IMP:PL (common gender) + the ventive clitic *d*. In Eastern Tarifiyt, IMP.FP can also be distinguished. IMP.FP suffixes are *-ṯ, -aṯ, -ṯet, -mṯ, -mt, -nt* (Lafkioui 2008c, 2009d).

Imperative conjugation

	Stem	Suffix	Variety/Notes
SG	X	Ø	pan-Snh.
PL	X	-a̱ṯ	K/T/S
	X	-ṯ	H/B/Z/M
	X	-m	Z/M (second possibility)
FP	X	-mt	Z/M (optional)

Example:

	Stem	Suffix	Translation	Variety/Notes
SG	k̲šem		Enter!	pan-Snh.
PL	k̲ešm	-a̱ṯ	Enter (PL)!	K/T/S
	k̲ešm	-e̱ṯ	Enter (PL)!	H/B/Z/M
	k̲ešm	-em	Enter (PL)!	Z/M (alongside *-e̱ṯ*)[291]
FP	k̲ešm	-emt	Enter (FP)!	Z/M (alongside *-e̱ṯ*)

In those varieties that employ the IMP:PL suffix *-a̱ṯ*, if the verb stem ends in a vowel, this vowel becomes a semivowel (*i* > *y* and *u* > *w*). Compare the following forms based on the pan-Senhaja verb *ttu* (Taghzut *ṭṭu*) 'to forget':

u > *w*

	Stem	sfx	Translation	Variety and notes
SG	ttu	Ø	Forget!	pan-Snh. (T *ṭṭu*)
PL	ttw	-a̱ṯ	Forget (PL)!	K/T/S (T *ṭṭw-a̱ṯ*)
	ttu	-ṯ	Forget (PL)!	H/B/Z/M
	ttu	-m	Forget (PL)!	Z (second possibility)

When a verb stem ending in *-a* is followed by the suffix *-a̱ṯ*, the vowels coalesce, and thus dialectal differences (Western Senhaja *-a̱ṯ* vs. Eastern *-ṯ*) are neutralized, e.g. *tɛešša-ṯ* (Ketama = Zerqet) 'have dinner (PL)!'. On the combination of IMP:PL suffix with the clitics, see Section 14.3.1.4.

Some verbs have suppletive imperatives, which can be borrowings from Arabic. For example, the verb 'to go' (Ketama/Taghzut/Hmed *ddu*, Bunsar/Zerqet *ɛḏu*) uses the

[291] As mentioned above, this suffix is preferred when there is a following ventive: *k̲ešm-em = d*.

Arabic Imperative form *sir* (pan-Senhaja). The plural form can be realized as *sir-u* (with the Arabic IMP:PL marker), as in Ketama, Taghzut, and Hmed, or as *sir-u-ṯ* (amalgamation of the Arabic and Berber IMP:PL markers), as in Taghzut and Zerqet. The form *sir-eṯ* (Arabic borrowed Imperative with the Berber affix) is only rarely found in Hmed.

The verb 'to come' (*ddu-d*, literally 'to go' + ventive) has a suppletive Imperative *arwaḥ* (Ketama) ~ *rwaḥ* (Hmed), IMP:PL *arwaḥu* (Ketama) ~ *ṛwaḥ-eṯ* (Hmed). The verb *kk* 'to give' can have a regular imperative (*ek(k)*, Ketama *he(k)*), or a suppletive Imperative *aṛa* (IMP:PL *aṛa-w* (Ketama/Zerqet) or *aṛa-ṯ* (Hmed/Zerqet)).

Imperatives can appear in sequence, e.g. *kker ečč!* (Hmed) ~ *kker hešš!* (Ketama), lit. 'Get up eat (SG)!' > 'Go eat!'. Compare also the following example with the Arabic Imperative *sir* 'go!': *sir ḫḏem!* (Ketama/Hmed) 'Go work (SG)!'

3.4.2.2. The Prohibitive

1) Prohibitive with the Berber negator

The Prohibitive, when used with the Berber negator *u* (or variants) has the same PNG markers as the Imperative, but is based on the Imperfective stem. Thus, the singular form has no affixes, while the plural form has the suffix *-aṯ* (Western Senhaja) ~ *-eṯ* (Central/Eastern Senhaja). In most Senhaja varieties, the negator used with prohibitive forms is *u* (Seddat *u~ur*, Hmed *u~(u)la*). Ketama uses a special prohibitive negator *i*, that only appears in the prohibitive forms, cf. Section 5.2.2.2. The negation is completed by the postverbal negator *š~ši~šay*. The scheme and examples follow.

Prohibitive PNG marking with the Berber negators

	NEG	**Stem**	**Suffix**	**NEG**	**Variety and notes**
SG	i~u(r)~(u)la	X	Ø	š(i)~šay	Snh. (NEG K *i*, S *u(r)*, H *(u)la*)
PL	i~u(r)	X	-aṯ	š(i)~šay	K/T/S
	u~(u)la	X	-ṯ	š(i)~šay	H/B/Z/M

As an example, consider the following prohibitive forms of the verb *ḵrez* 'to plow' (Imperfective *ḵerrez*).

Prohibitive forms with the verb *ḵrez* 'to plow' (Imperfective *ḵerrez*)

	NEG	Stem	Suffix	NEG	Variety and notes
SG	i~u(r)~(u)la	ḵerrez	-ø	š(i)~šay	Snh. (NEG K *i*, S *u(r)*, H *(u)la*)
PL	i~u(r)	ḵer(r)z	-aṯ	š(i)~šay	K/T/S
	u(la)	ḵer(r)z	-eṯ	š(i)~šay	H/B/Z/M

When the Imperfective verb stem ends in a vowel, it becomes a semivowel before the plural suffix *-aṯ* (*i* > *y* and *u* > *w*), as in the Imperative. Just as with the Imperative, when an Imperfective verb stem ending in *-a* is followed by the suffix *-aṯ*, there is vowel coalescence, and thus dialectal differences (Western Senhaja *-aṯ* vs. Eastern *-ṯ*) are neutralized (in those cases where the Imperfective stem in the different varieties is the same).

2) Prohibitive with the borrowed negator *ma*

In some Senhaja varieties, there exists an alternative Prohibitive form (which is a calque on Arabic) with the borrowed preverbal negator *ma*.[292] It takes the second person (2S and 2P) PNG affixes, and uses the Aorist stem. The lack of spirantization in the 2S and 2P verb subject prefix (*t-*) shows that the form is underlyingly *ma* + (irrealis) *aḏ* + verb form. The final vowel of *ma* and the initial vowel of *aḏ* coalesce, while the final *-ḏ* of *aḏ* is only visible in the lack of spirantization in the following *t-* (*ma* + *aḏ* + *ṯ-* > *mˆaˆt-*...). The negation is completed with the postverbal negator *š~ši~šay*. Within Ketama, this prohibitive is used in Sahel and Lmekhzen. The Ikherruden dialect of Zerqet does not employ this construction. The scheme and examples follow.

Prohibitive PNG marking with the borrowed negator *ma*

	NEG	NR		Stem	Suffix	NEG
SG	m	a	t-	X	-eḏ	š(i)~šay
PL	m	a	t-	X	-em	š(i)~šay

Example: the verb *ḵrez* 'to plow'

	NEG	NR		Verb	Suffix	NEG
SG	m	a	t-	ḵerz	-eḏ	š(i)~šay
PL	m	a	t-	ḵerz	-em	š(i)~šay

[292] In Arabic, the prohibitive is formed by negating the Imperfect verb form (2S and 2P). In Ghomara, this is the only prohibitive construction (Mourigh 2015: 118).

Example: the verb *asi* 'to lift'

	NEG	NR		Verb	Suffix	NEG
SG	m	a	t-	asi	-d̲	š(i)∼šay
PL	m	a	t-	asi	-m	š(i)∼šay

3.4.2.3. The Injunctive

The injunctive is used to encourage the addressee to do something together with the speaker. There are two possible constructions employed in Senhaja. Both appear following the irrealis marker *a* and are usually preceded by *yaḷḷah* ∼ 'Let's!'):

1) the form with the 1P prefix *n-*;
2) the form with the 1P prefix *n-* combined with the IMP:PL suffix *-at̲* (Western Senhaja)*/-et̲* (Central/Eastern Senhaja).[293]

The schemes and examples follow. The example is based on the verb *k̲šem* 'to enter'.

The Injunctive: scheme and examples

	Scheme	'Let's enter!'	Variety
1)	a n-X	a n-ek̲šem	pan-Snh.
2a)	a n-X-at̲	a n-k̲ešm-at̲	K/T/S
2b)	a n-X-et̲	a n-k̲ešm-et̲	H/B/Z/M

3.4.3. The Relative Form ("Berber participle")

There is a form traditionally known in Berber Studies as the "Berber participle", but which we call the *relative form* to avoid confusion with the participles borrowed from Arabic.[294] This verbal form appears in subject relative constructions, i.e. in relative clauses where the head (antecedent) functions as the subject. Cf. Section 12.4.3 on relativization.

The relative form is used in most Senhaja varieties with Perfectives and Imperfectives, both in affirmative and in negative contexts, but does not occur with

[293] This construction is also found in Ghomara (Mourigh 2015: 117) and in Tarifiyt (Kossmann 2001a; Lafkioui 2008c, 2009d, Mourigh & Kossmann 2020).

[294] The term *relative form* is also used in Mourigh 2015. On this verb form, see Drouin 1996, Marcy 1936, Kossmann 2003a, Galand 2006, and Brugnatelli 2011. Ouali 2011 discusses the Berber relative form as anti-agreement (AA): in subject-extraction contexts, the verb loses its agreement with the subject and defaults to a third person singular *i-* and a suffix *-n*.

the construction *aḏ* + Aorist, except Zerqet. The formation of the relative form is homogeneous throughout Senhaja, although there are differences in its use (especially in contexts of negation). The shape of the relative form is *i*-X-*n*: the form consists of the prefix *i- (~y-)* (like the 3MS marker) and the suffix *-(e)n*. In most Senhaja varieties, the relative form usually follows the relative marker, which is *a* or *na(ḏ)*: Ketama/Taghzut *a*, Seddat/Hmed/Bunsar *(n)a*, Zerqet/Mezduy *na(ḏ)*, glossed "RM". The prefix of the relative form is realized as *y-* following *a* and as *i-* following *ḏ*. The relative form is invariable for number and gender throughout Senhaja.[295] Additionally, Zerqet allows for a distinct FP relative form that has the shape: *i*-X-*nt*. The scheme and examples based on the verb *ḵrez* 'to plow' follow.

The relative form: scheme and examples

	RM	Pfx	Stem	Sfx	Variety	e.g. 'who plowed'
	a	y-	X	-n	K/T	a y-ḵerz-en
	na	y-	X	-n	S/H/B/Z	na y-ḵerz-en
	naḏ	i-	X	-n	Z/M	naḏ i-ḵerz-en
FP	naḏ	i-	X	-nt	Z	naḏ i-ḵerz-ent

Additional examples follow:

Form	Translation	Variety/Notes
(n)a y-ḵešm-en	who entered	most Snh. (K/T *a*, S/H/B *na*)
naḏ i-ḵešm-en	who entered	Z
na y-usi-n	who lifted	most Snh.
naḏ i-wsi-n	who lifted	Z
(n)a y-Tasi-n	who is lifting	K *ttasi*, S/B *tasi*, T/H *ṭasi*
naḏ i-tasi-n	who is lifting	Z

3.4.4. Impersonal Verbs

3.4.4.1. Overview

Some verbs are used without PNG markers, or PNG markers may be optional or frozen. Such verbs are called 'impersonal'. These can be auxiliaries or modal verbs used in combination with other verbs that express the person. Impersonal verbs can

[295] The same situation is observed in Ghomara, Tarifiyt, Beni Iznasen, and Figuig, Western and Eastern Kabyle, Chaouia (Frah), and Awjila (Kossmann 2013a: 375-376).

take verbal pronominal clitics, which makes them similar to pseudo-verbs (cf. Section 5.3.4). The difference with the pseudo-verbs is that impersonal verbs originate from proper (lexical) verbs and originally had PNG affixes, which are sometimes still possible with some of them. Also, impersonal verbs may still have MA(N) distinctions, which do not exist for pseudo-verbs. The following verbs can be used without PNG affixes (or with a frozen 3MS PNG prefix) in Senhaja. They all can take IO clitics:

Verb	**Translation**	**Variety**	**Accepts PNG affixes**
ḫeṣṣ	need, have to, want	pan-Snh.	+ (K/T/H), - (Z: only 3MS *i-*)
ḥsab(-l)	believe, think	pan-Snh.	-
ṭiġay(d)	believe, think	Hmed	+ (cf. Taghzut *(ṭ)iġaž*)
ḥsen	be better	Zerqet	-

3.4.4.2. *ḫeṣṣ* ‘need, want, have to’

The verb *ḫeṣṣ* ‘to need, want, have to’ accepts PNG affixes in K/T/H, while in Zerqet, it can only take the 3MS prefix *i-*; across Senhaja, it is usually used with an IO clitic pronoun:[296]

(18) *(i-)ḫeṣṣ* = *ay* *lkisan* (pan-Snh.)
(3MS-)need = 1S:IO glasses
‘I need (drinking) glasses.’

In Ketama, Taghzut, and Hmed, the plural agreement is also possible, while in Zerqet, it is considered ungrammatical:

(19) *ḫeṣṣ-an* = *ay* *lkisan* (K)
ḫeṣṣ-n = *ay* *lkisan* (T, H, *Z)
need-3P = 1S:IO glasses
‘I need (drinking) glasses.’

Compare the following example with a lexical verb:

(20) *(i-)ḫeṣṣ* = *ay* *a* *ddu-ġ* (K/T/H)
(3MS-)need = 1S:IO NR go:A-1S
‘I need to go.’

[296] This lexeme occupies an intermediate stage between an impersonal verb and a pseudo-verb, as the prefix *i-* is not obligatory, and the aspects other than Perfective are hardly ever used.

3.4.4.3. *ḥsab ~ sḥab* ‘believe, think, reckon, seem to’

The verb *ḥsab* ‘to seem (to someone), to reckon’ (cf. *ḥseb* ‘to count’, which is conjugated normally) is special both in that it is impersonal (is used without PNG affixes) and in the pronominal forms that it takes in Ketama (cf. below). In Zerqet, the form *sḥab* is more frequent, especially in the dialects of Wersan and Allal. The verb *ḥsab/sḥab* takes the Berber IO clitics in Zerqet, with the optional *l-* (Arabic borrowed Dative preposition) before the clitic:

(21) *ḥsab* *(=l)* *=as* (Z)
seem (=DAT) =3S:IO
‘It seems to him/her.’, ‘(S)he reckons.’

(22) *sḥab* *(=l)* *=anaġ* *kulši* *ččа-n* (Z)
seem (=DAT) =1P:IO all eat:P-3P
‘We think everyone ate.’

In Ketama, this verb either takes the Arabic pronominal suffixes (cf. Section 8.6.2) or the Berber pronominal suffixes that in form coincide with the suffixes following prepositions and kinship terms (cf. Section 8.3, e.g. 3MS *-s* rather than the 3S:IO clitic *as*). The Arabic Dative preposition *l* can also (optionally) be used.[297] For example:

(23) *Mimun* *ḥsab* *=(l)* *-es* *belli* *Zuliḫa* *h-edda* (K)
Mimun seem (=DAT) -3S COMP Zulikha 3FS-go:P
‘Mimun believes that Zulikha left.’

In Taghzut and Hmed, the verb *ḥsab* in the sense ‘to reckon, to seem to’ is not frequently used. Instead, these varieties use the Imperfective stem of the Berber verb *(ṭ)iġaž* (Taghzut)*/(ṭ)iġay* (Hmed) (*ṭ-* is the Imperfective prefix) ‘to reckon’ (see below).

3.4.4.4. *ṭiġay(d)* (Hmed) ‘to reckon, seem to’

The verb *ṭiġay(d)* ‘to reckon, think, believe, seem to’ (Hmed) is most frequently used in the Imperfective (with the prefix *ṭ-*). The Aorist stem is *iġay*.[298] In the Aorist, the verb is conjugated normally, by means of the PNG subject affixes rather than as an

[297] The Ketama construction can be seen as a calque on Arabic *ḥsab-l-*. In this case, in Arabic, there is a Dative preposition *l*, followed by a pronominal form.
[298] Compare the cognate verb *ġil* in Mzab, Wargla, (originally Imperfective) *ttġir* in Tarifit (with IO clitics) ‘think, believe, seem to’ (Haddadou 2007: 156-157).

impersonal verb with the IO clitcs. The Imperfective stem can be used in two different ways: either the stem *ṭiġay* is used with the regular PNG affixes (example *a*), or the stem *ṭiġay(d)* (with the optional final *-d*) is used as an impersonal verb (without the PNG affixes) accompanied by the IO pronominal clitics (example *b*):

(24) (a) *Mimun i-ṭiġay Zuliḫa ṯ-edda* (H)
Mimun 3MS-count:I Zulikha 3FS-go:P
(b) *Mimun ṭiġay(d) =as Zuliḫa ṯ-edda* (H)
Mimun count:I =3S:IO Zulikha 3FS-go:P
'Mimun believes that Zulikha left.'

3.4.4.5. *ḥsen* 'be better (for)'

The impersonal verb *ḥsen* 'to be better (for)' found in Zerqet takes IO clitics, e.g.

(25) *ḥesn =as* (Z)
be.better =3S:IO
'It is better for him/her.'

3.5. Conclusions

Verb Derivation
There are several derivations in Senhaja that express modifications in voice. There are two valency-increasing mechanisms that derive causatives: derivation with the prefix *s(s)-* (common among Berber), and the gemination of C2 (the second radical of the verb root, the Arabic stem II), usually found with borrowed verbs, but in some cases, applied to the native Berber verbs (pattern borrowing). For native verbs, stem II causatives are often suppletive. There are several valency-decreasing mechanisms that derive passives and, sometimes, middles or medio-passives. Passives are derived with prefixes *t(t)-* and *n(n)-* (shared with Arabic) across Senhaja, while there are also dialect-specific prefixes with a semivowel: *ttya-* (K), *ṯṯuya-* (H), and *ttwa-* (Z). These are Berber prefixes, but they can be found with borrowed Arabic verbs. The passive prefix *m(m)-* is very rare, and the prefix *n(n)* cannot be seen as its allomorph (different from other Berber varieties). It is possible that *n-* became widespread in Senhaja under the influence from Arabic, while not necessarily being borrowed. As with causatives, some passives are suppletive. While derivational prefixes are found across the Berber world, Senhaja is special in its widespread use of borrowed Arabic stem II causatives (often suppletive to the Berber verbs) and suppletive passives. This feature is also found in

Ghomara (Mourigh 2015). Some verbs allow for multiple causative or passive counterparts. The combination of different derivations is possible to a certain extent. Besides the derivations mentioned above, Senhaja has borrowed a large number of Arabic derived verbs. In some cases, Arabic patterns are applied to the native Berber verbs – most notably, stem II, formed by C2 gemination, but also stem V, that combines stem II with the *t*-prefix. With Arabic borrowed verbs, some hybrid forms are found that do not exist in Arabic, such as the combination of the *t*-prefix with stem I (the underived base), or the *n*-prefix with stem II (with the geminated C2).

PNG (Person, Number, Gender) Subject Marking

Verbal subject PNG markers express the person, number, and gender (PNG) of the subject. In most varieties with the exception of Easternmost Senhaja (Z/M), the gender is marked only in the third person singular. Zerqet and Mezduy allow for gender marking also in 2P and 3P. The affixes appear both before (prefixes) and after (suffixes) the stem. There are different sets of subject affixes: 1) the normal set; 2) the imperative; 3) the relative form (traditionally called the "Berber participle").

Some PNG markers show variation as a result of phonological changes and reanalysis. The marking is slightly different in the Aorist following the irrealis particle *a(ḏ)* vs. in the Perfective and Imperfective. The variable markers in Senhaja include: 1S suffix (originally **eġ*), 2S/3FS/2P prefix (originally *t-*), and 3MS prefix (originally *i/y-*). The 1S subject suffix has developed from *-eġ* into *-aġ* in most varieties, and to *-a* in Ketama. With V-final verbs, the 1S suffix is *-ġ*, e.g. (K) *ḵešm-a* 'I entered' vs. *ddi-ġ* 'I went'.

There is one prefix for 2S, 3FS, and 2P: the prefix *ṯ-*. In Ketama, it developed into *a-/h-/ah-*, e.g. *ṯ-eḵrez* (most Snh.) vs. *a(h)-ḵrez*~*h-eḵrez* (K) 'she plowed'. In the Aorist following the irrealis marker *a(ḏ)*, the prefix is realized as *t-* as a result of assimilation (*aḏ*+*ṯ* > *atˆt* > *aˆt*), e.g. *š-a ˆt-eḵrez* (pan-Snh.) 'she will plow'.

The 3MS prefix is originally *i-/y-*, and this realization is still found in some contexts, e.g. *i-ḵrez* 'he plowed'. In parts of Senhaja (T/S/H), in the Aorist forms following the irrealis *aḏ*, there is no *i-*, e.g. *aḏeḵrez* 'he will plow'. In such cases, the prefix can be analyzed as zero (*aḏ eḵrez*), or the final *ḏ* of the irrealis particle can be considered as the new subject prefix (*a ḏ-eḵrez*). Compare Ketama *a y-eḵrez*, Zerqet *aḏ i-ḵrez* 'id.'. Bunsar has *aḏ i-ḵrez* ~ *a ḵrez*.

In Perfective Negative, *ḏ* is found in parts of Senhaja (T/S/H), generalized from the Aorist, e.g. *uḏeḵrez š* 'he did not plow'. Again, the 3MS marker can be analyzed as zero (*uḏ eḵrez š*), or as *ḏ-* (*u ḏ-eḵrez š*). Ketama has *u y-eḵrez š*, Zerqet *uḏ i-ḵrez š*, and Bunsar *uḏ i-ḵrez š* ~ *u ḵrez š* 'id.'. A zero marker is also found in parts of Seddat with the negator *ur*: *ur eḵrez š* 'id.'.

When a verb starts in a vowel, 3MS prefix is *i-/y-* across Senhaja in unmarked contexts (e.g. Perfective, affirmative: *y-uri* ~ *i-wri* 'he wrote'), and in the Aorist following the preverb *aḏ*: *aḏ y-ari* (most Snh.), Ketama *a y-ari* 'he will write'. In Perfective Negative, 3MS is *i-/y-* in most varieties: *uḏ i-wri š (~uḏ y-uri š)* (H/B/Z), *u y-uri š* ~ *i-wri š* (K) 'he did not write'. In Taghzut, *y-* is optional: *uḏ (y-)uri š*. Seddat (dialectally) has *u ḏ-uri š* ~ *ur uri š*.

The Imperative singular has no PNG affixes. There are two plural suffixes which form an isogloss: *-aṯ* in Western Senhaja (K/T/S), *-ṯ* in Eastern Senhaja (H/B/Z/M). Zerqet uses IMP:PL *-em* before the ventive clitic *d* (*-em=d*). For example: *ḵšem* 'enter (sg.)!' (pan-Snh.); *ḵešm-aṯ* (K/T/S), *ḵešm-eṯ* (H/B/Z/M) 'enter (pl.)!'.

The Prohibitive, when used with the Berber negator *u* (or variants) has the same marking as the Imperative. The varieties differ in the choice of the preverbal negator: most varieties *u* (T/B/S), Ketama *i*, Seddat *u(r)*, Hmed *(u)la*. In some varieties, there exists an alternative Prohibitive form (a calque on Arabic) with the borrowed preverbal negator *ma*. It takes the second person PNG affixes, and uses the Aorist stem (following the irrealis *aḏ*), e.g.

(26) *mˆa* *ˆt-asi-ḏ* *š*
NEGˆNR ˆ2-lift:A-2S NEG
'Do not lift (sg.)!'

The injunctive uses the 1P prefix *n-*, optionally combined with the IMP:PL suffix *-aṯ/ -eṯ*, always used with the irrealis particle *a*, e.g. *a n-eḵšem* (pan-Snh.), *a n-ḵešm-aṯ* (K/T/S), *a n-ḵešm-eṯ* (H/B/Z/M) 'Let's enter!'.

The relative form (also known as the "Berber participle") is a verbal form used in subject relative constructions. The shape of the relative form is *i*-X-*n*, invariable for number and gender, e.g. *i-ḵerz-en* 'who plowed'. Optionally, Eastern Senhaja (Z/M) uses a FP form: *i*-X-*nt*.

Impersonal verbs can be used without PNG markers, or PNG markers may be optional or frozen. They can take pronominal IO clitics, which makes them similar to pseudo-verbs, e.g. *(i-)ḫeṣṣ=ay* ((3MS-)need=1S:IO 'I need' (lit. 'it is needed to me').

4. MAN (Mood, Aspect, Negation)

4.1. Introduction: Function and Form

Overview

In literature on Berber (see e.g. Kossmann 2012a: 39), instead of the TAM (Tense, Aspect, Mood), we find the notion of MAN (Mood, Aspect, Negation).[299] Except Mezduy and the Wersan dialect of Zerqet, most Senhaja varieties lack distinct negative verbal stems. Hence, in the majority of Senhaja, it is only the mood and the aspect (and not the negation) that are expressed in the verb stem. Most Senhaja varieties distinguish three stems, while the Wersan dialect of Zerqet and Mezduy maximally distinguish five stems. In this thesis, they are referred to as the Aorist, the Perfective, and the Imperfective (abbreviated as AOR, PERF, and IPF, and as A, P, and I in the gloss line, respectively).[300] For Wersan and Mezduy, there is also Perfective Negative (PERF.N, glossed PN) and Imperfective Negative (IPF.N, glossed IN). Some examples follow.

Stem	**'lift'**	**'find'**	**'draw water'**	**'enter'**	**'beat'**	**Variety**
AOR	asi	af	agem[301]	k̲šem	degdeg	pan-Snh.
PERF	usi	ufa	ugem	k̲šem	degdeg	pan-Snh.
PERF.N	usi	ufi	ugim	k̲šim	degdig	Z-Wersan/M
IPF	ttasi	ttaf	ttagem	k̲ešše̲m	ddegdag	K
	tasi	taf	tagem	k̲ečče̲m	ddegdag	S/B/Z/M
	ṭasi	ṭaf	ṭagem	k̲ečče̲m	ṭdegdag	T/H
IPF.N	tasi	tif (Z-W), taf (M)	tagem	k̲ečče̲m	ddegdig	Z-Wersan/M

Some verbs have distinct MA(N) stems, while others might show homonymy (especially in the Aorist and the Perfective).

[299] On aspects in Berber, see e.g. Galand 1977.

[300] Different names are used e.g. in A. Basset 1952: 13 and Galand 2010: 207-232. Our Perfective corresponds to Galand's *Accompli* and Basset's *Prétérit*, while Imperfective corresponds to Galand's *Inaccompli* and Basset's *Aoriste intensif*. Here we use the terms *Aorist*, *Perfective*, and *Imperfective* following Kossmann 2012a and Mourigh 2015.

[301] Hmed *ayem*, PERF *uyem*, IPF *ṭayem*. In Wersan dialect of Zerqet and in Mezduy, the Aorist stem is *ag̲em*.

Function

The Aorist (or unmarked stem), when appearing without a particle, is usually used for the imperative or as a consecutive (sequential, narrative) form.[302] More commonly, it is preceded by a preverbal marker such as the irrealis *a(ḏ)*, glossed NR, or the future *(ma)š-a(ḏ)*, glossed FT-NR.[303] In this case, it expresses a non-realized event (irrealis, future, uncertainty, possibility, probability, wish, conditional, prospective, subjunctive, etc.).[304] The preverbal markers trigger clitic fronting (cf. Section 12.4.2). The Perfective is used in different manners, and can have different interpretations depending on the verb: a dynamic event in the past, or a stative (including resultative) event.[305] It is especially in the Perfective that the distinction between dynamic and stative verbs is important for the interpretation. Labile verbs can have different readings (cf. Appendix 6 for a list of labile verbs in Senhaja). The Imperfective is used for the progressive, simultaneous, habitual, general, iterative, durative, etc. It may also express inchoative with verbs describing states/quality.

The verbal form can appear in negative contexts, preceded by the negative particle (*u(r)*, *uḏ, la, ma*) and followed by the postverbal negative particle *(š~ši~šay)*. In Mezduy and parts of Zerqet (Wersan), special negative forms of the verbs are found (Perfective Negative and Imperfective Negative).

Morphological distinctions between the MA(N) stems

In Senhaja, many verbs do not formally distinguish between the Aorist and the Perfective stem (such verbs are referred to as "AOR = PERF" in this thesis). However, there are also verbs which distinguish the Perfective from the Aorist. The Imperfective is almost always distinguished. Verbs starting in *a-* always distinguish between the Aorist and Perfective, as they form the Perfective by changing the initial *a-* to *u-*. The following table shows three pan-Senhaja verbs in three stems:

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[302] For the study of the Aorist in Zenaga, see Taine-Cheikh 2009b and 2016. On the consecutive Aorist, cf. Galand 2002: 261-265, Galand 2010: 228, and Bentolila 1981: 153-154.

[303] On *(ma)š* and *a*, cf. Mourigh 2015: 407-409. In both Senhaja and Ghomara, *maš* is borrowed from the Arabic participle *maši* (FS *maša,* PL *mašyin*) 'going'. In Senhaja, unlike in Ghomara, the marker *(ma)š* can appear in relative and subordinate clauses. Also, in Senhaja, *(ma)š* is not limited to the speech of the older people, but rather is a rare (and a more emphatic) variant of *š*.

[304] Cf. Bentolila 1981: 146.

[305] See Galand 2010: 207-224, Mettouchi 2003b, and Kossmann 2012a: 79. Not all stative verbs are resultatives, however (cf. Chaker 1995: 63-82). For a discussion of the difference between resultative states and "pure" states expressed by the adjectives and participles, cf. Mourigh 2015: 411-413.

	‘to enter’	**‘to lift’**	**‘to cry’**
AOR	k̲šem	asi	ttru
PERF	k̲šem	usi	ttru
IPF	k̲eššem (K), k̲eččem (most Snh.)	t(t)asi (K/S/B/Z), ṭasi (T/H)	ttru (K), tettru (B/Z)

Comments:

- the verb *k̲šem* ‘to enter’ is a triradical verb, and as most verbs of this type, it does not formally distinguish between the Perfective and Aorist stem; as many verbs of this type, it forms its Imperfective by geminating the second radical (Ketama *š* > *šš*, the rest of Senhaja *š* > *čč*, cf. Section 2.1.2.2);
- the verb *asi* ‘to lift’ has the Perfective stem *usi*; like other *a*-initial verbs, it forms its Imperfective by means of the prefix *t(t)*- (Ketama *tt*-, Bunsar/Zerqet *t*-, Hmed *ṭ*-);
- the verb *ttru* ‘to cry’ (Hmed *ṭru*) is originally the Imperfective that has been re-analyzed as the Aorist.[306] In Ketama, this verb is a rare example of AOR = PERF = IPF verb. In Hmed, Bunsar, and Zerqet, there is a newly formed Imperfective *tettru* (Hmed *ṭeṭru*).

In what follows, the morphology of the three verbal stems is studied in more detail, in both underived and derived verbs, starting with the Aorist (taken as the basis) and followed by the Perfective and Imperfective. As mentioned previously, in this thesis, the term “verb formation” refers to forming of MA(N) stems. Verb formation is related to the formal characteristics of the verb. Thus, most CCC verbs do not formally distinguish between the Aorist and the Perfective, while *a*-initial verbs always do so (cf. the above table). In the final section, some conclusions are drawn regarding major differences in verb formation in underived and derived verbs.

4.2. The Aorist

4.2.1. Variations within Aorist Paradigms

In this section, we present some variations within Aorist paradigms:

1) some verbs have *u*~Ø alternation in the Aorist stem in Ketama: *u* that appears in forms without suffixes alternates with Ø (zero) in forms with suffixes;

[306] The verb *ru* is found in Tarifiyt.

2) some verbs acquire the final *-i* before 2P suffix *-m* and 3P suffix *-n* (Ketama, Taghzut), usually in free variation with the conjugation without the *i*;
3) some verbs have the final *-i/a* alternation in the Aorist in Zerqet, corresponding to the invariable *-i* in the rest of Senhaja (Ketama, Taghzut, Hmed).[307] In Zerqet, the final *-i* appears in 1S and 2S, and *-a* in the rest of the paradigm; in Imperative, the Ikherruden dialect of Zerqet has *-a*.

All these peculiarities of the Aorist are discussed below.

4.2.1.1. Ketama *u*~Ø Alternation

In Ketama, some verbs have *u* in IMP:SG and in finite forms without suffixes (i.e. 3MS, 3FS and 1P), but *u* is lacking in forms with suffixes (i.e. IMP:PL, 1S, 2S, 2P and 3P). In some cases, such forms must be a result of lost labialization (as e.g. in the verb *n(u)ġ* 'to die'). The same feature is found in Ghomara (Mourigh 2015). Cf. Section 2.1.6 on labialization. Verbs that fall into this category include: *n(u)ġ* 'to kill', *s(u)ġ* 'to buy', *ff(u)ġ* 'go out', and *kk(u)r* 'stand up'.[308] Below, the Imperative Singular (no suffix) and the Imperative Plural (suffix *-aṭ*) forms are contrasted.

	'to kill'	**'to buy'**	**'to go out'**	**'to get up'**
IMP:SG	nuġ	suġ	ffuġ	kkur
IMP:PL	nġ-aṭ	sġ-aṭ	ffġ-aṭ	kkr-aṭ

4.2.1.2. Ketama and Taghzut Ø~*i* Alternation in 2P and 3P

With some verbs, in Ketama and Taghzut, the verb stem optionally acquires *i* in the Aorist 2P and 3P forms. This is especially frequent with biradical verbs or verbs consisting of a single long consonant. This must be an old feature that might be disappearing. Such verbs usually show *i/a* vowel alternation in the Perfective, cf. Section 4.3.1.3. Some examples follow:

[307] Ketama usually behaves like Hmed (i.e. has invariable *i* in the Aorist), while some verbs show alternation, as in Zerqet. In this case, the Imperative in Ketama ends in *-i*.
[308] Different from Ghomara (Mourigh 2015: 152-153), the verbs *qqen* (cf. Ghomara *qqun*) 'to tie' and *rkem* (cf. Ghomara *lkum*) 'to reach' do not belong to this category in Ketama.

	‘say’	‘buy’	‘laugh’	‘break’	‘study’
IMP:SG	(he)nn	s(u)ġ	ḏeṣ	ṛeẓ	ġer
IMP:PL	nn-aṯ	sġ-aṯ	ḏṣ-aṯ	ṛẓ-aṯ	ġr-aṯ
2P	aˆt-enn-em	aˆt-esġ-em	aˆt-eḏṣ-em	aˆt-eṛẓ-em	aˆt-eġr-em
~	aˆt-enni-m	aˆt-esġi-m	aˆt-eḏsi-m	aˆt-eṛẓi-m	aˆt-eġri-m
3P	a nn-en~	a sġ-en~	a ḏṣ-en	a ṛẓ-en	a ġr-en
~	a nni-n	a sġi-n	a ḏṣi-n	a ṛẓi-n	a ġri-n

4.2.1.3. Final *-i/a* Alternation

1) Final *i/a* alternation in underived verbs in Zerqet

In Zerqet, there are many verbs that show the final *-i/a* alternation (indicated by “i/a”), where *-i* is used in 1S and 2S, and *-a* appears in the rest of the paradigm.[309] In most Senhaja varieties, this kind of alternation is limited to the Perfective (cf. Section 4.3.1.3).[310] Ketama has *-i/a* alternation in a few verbs, but in most cases, the stem is invariable. Typically, the verbs with *-i/a* alternation have Imperatives on *-a* in Zerqet, corresponding to the invariable *-i* in other varieties. The paradigm of the verb *ġenni/a* ‘to sing’ in the Aorist follows (Zerqet).

Aorist *i/a* alternation in Zerqet: the verb *ġenni/a* ‘to sing’

1S	a ġenni-ġ	**1P**	a n-ġenna
2S	a t-ġenni-ḏ	**2P**	a t-ġenna-m
3MS	aḏ i-ġenna	**3P**	a ġenna-n
3FS	a t-ġenna		

Below we list other Zerqet verbs that fall into this category. Comparisons with other Senhaja varieties are provided.

Zerqet *-i/a* alternation vs. invariable *-i* in most Snh. (T/S/K/H)

Zerqet (1S + 2S/the rest)	Most Snh.	Translation
ɛelli/a	ɛelli	go up
glaṣi/a	glaṣi	freeze smth.
laqi/a	laqi	meet
semmi/a	semmi	name

[309] The difference is thus not between the verb forms with suffixes vs. without suffixes, as e.g. in Tarifiyt (Mourigh & Kossmann *f.c.*).

[310] Similarly, in Ghomara (Mourigh 2015: 151), stem alternation exists only in the Perfective.

2) Final *i/a* alternation in derived verbs

In derived verbs, the final *i/a* alternation is also found outside Zerqet, e.g. in Ketama. In this case, Ketama behaves like Zerqet, with the Imperative in *-a* and the final *i/a* alternation, while Taghzut and Hmed have the invariable *-i*.[311] This is found with *t-* and *n*-derived verbs. For example:

***t*-derived verbs**

Ketama, Zerqet	Taghzut, Hmed	Translation	Ketama, Zerqet	Taghzut, Hmed	Translation
tɛeššiːa	tɛeššiː	have dinner	tteẖwiːa	tteẖwiː	be emptied
tġeddiːa	tġeddiː	have lunch	tlaqiːa	tlaqiː	meet (each other)
tweḍḍiːa	tweḍḍiː	perform ablution	tluwwiːa	tluwwiː	spin (intr.)
ttermiːa	ttermiː	be thrown	ttelhiːa	ttelhiː	be distracted

***n*-derived verbs**

Ketama, Zerqet	Taghzut, Hmed	Translation
nneẖwiːa	nneẖwiː	be emptied
nneqliːa	nneqliː (B/T), nneqyiː (H)	be fried

In verbs derived with the prefixes *ttya* (K), *ṭṭya* (T), *ttwa* (Z), there is *i/a* alternation in Zerqet, and an optional alternation in Ketama and Taghzut, e.g.

AOR	Translation	Base verb	Translation	Variety
ttwabniːa	be built	bnu	build	Z
ttyasiːa ~ ttyasiːa	be carried	asi	carry	K/T

4.2.2. Aorist Different from the Imperative

Usually, the Aorist stem without the PNG affixes equals the Imperative singular form. There are, however, some exceptions:

1) some verbs have suppletive imperatives;
2) some verbs acquire the initial *h-* in IMP:SG in Ketama that is absent in other verb forms (IMP:PL and all finite Aorist forms).

[311] Seddat variety behaves like Ketama/Zerqet (with the alternation), while Bunsar behaves like Taghzut/Hmed, lacking the alternation.

4.2.2.1. Verbs with Suppletive or no Imperatives

The following verbs have suppletive Imperatives:

AOR	IMP	Transl.	Variety/Notes
ddu, ɛdu	sir	go	K/T/H (*ddu*), B/Z (*ɛdu*)
ddu + ventive	(a)rwaḥ	come	K/H
as + ventive	adu (Z), addu (H/B)	come	B/H/Z

4.2.2.2. Ketama Singular Imperative in *h-*

Some verbs acquire the initial *h-* in IMP:SG that is absent in other verb forms. Such verbs almost always consist of a single long consonant. In other Senhaja varieties, the IMP:SG form of these verbs starts in the schwa. Most likely, the initial *h-* in Ketama is a way to preserve the initial schwa. The verb *ww* 'to do' has the underlying form *hew(w)* in IMP:SG (cf. IMP:PL *ww-aṯ*), which is realized as *hu*. On the optional stem alternation in 2P and 3P of these verbs, see Section 4.2.1.2. The verb *až~ağğ* 'to leave' which is currently V-initial also acquires the initial *h* in IMP:SG. The following examples are all verbs of this type in our database.

IMP	*kk* 'to give'	*nn* 'to say'	*šš* 'to eat'	*ww* 'to do'	*až* 'to leave'
SG	hek(k)	hen(n)	heš(š)	hew(w) [hu]	haž
PL	kk-aṯ	nn-aṯ	šš-aṯ	ww-aṯ	až-aṯ

4.3. The Perfective

Most verbs (especially of the CCC type) have homophonous Aorist and Perfective stems (AOR = PERF). However, some verbs have Perfective stems differing from the Aorist (AOR ≠ PERF). In what follows, the verbs that distinguish the Perfective stem from the Aorist are presented first. This group of verbs is divided into subgroups according to the formation of the Perfective. Verbs are grouped according to their type (formal makeup). Verbs that do not formally distinguish the Aorist from the Perfective are treated afterwards.

4.3.1. The Perfective Distinct from the Aorist

The Perfective stem can differ from the Aorist in the following ways:

1) initial vowel change (AOR *a-* vs. PERF *u-*), Section 4.3.1.1;
2) medial vowel change (AOR *i* vs. PERF *a*; AOR *u* vs. PERF *a*), Section 4.3.1.2;
3) final vowel insertion or alternation (Perfective *i/a* alternation), Section 4.3.1.3.

4.3.1.1. Initial Vowel Change

Verbs that start in the vowel *a-* in the Aorist change this vowel to *u* in the Perfective. The following table lists some examples.

Type	AOR	PERF	Translation	Variety/Notes
aCi	asi	usi	carry, lift	pan-Snh.
aCu	aru	uru	give birth	pan-Snh.
aCC	agem	ugem	fetch water	K/Z (cf. H *ayem*, PERF *uyem*)
aC:C	azzel	uzzel	run	Z (cf. K/H/B *azzi*, PERF *uzzi*)
aCuC	aẓum	uẓum	fast	K/S/B/Z (vs. H *uẓum* AOR = PERF)

The following *a*-initial verbs of the type ***aC*** likewise change *a-* to *u-* in the Perfective, but also have *i/a* alternation (cf. Section 4.3.1.3):

Type	AOR	PERF	Translation	Variety/Notes
aC	af	ufi/a	find	pan-Snh.
aC	as(-d)	usi/usa(-d)	arrive	B/Z, always with ventive *d*
aC:	až~ağğ	uži/uža	let, leave	K/H/Z (~Z PERF *uğği/a*)

4.3.1.2. Medial Vowel Change

Some verbs form Perfective by the medial vowel change. This is especially frequent in Ketama and Hmed (as opposed to Zerqet, where the medial vowel normally remains unchanged and thus Perfective = Aorist) and occurs mostly in hollow verbs borrowed from Arabic.[312] Some verbs of Berber origin also occur. The vowel change typically involves $i > a$ and $u > a$. Some examples follow.

Medial vowel *i* > *a*

Type	AOR	PERF	Translation	Variety/Notes
CiC	fiq	faq	wake up	K/H
CiC	žif	žaf	choke	K/H (vs. Z *žaf* AOR = PERF)
CiCC	sisen	sasen~sisen	to dip	H (vs. Z *sisen* AOR = PERF)

[312] The same feature is observed in Ghomara (Mourigh 2015: 156-157).

Medial vowel *u* > *a*

Type	AOR	PERF	Translation	Variety
CuC	ɛum	ɛam	swim	K/H (vs. Z *ɛum* AOR = PERF)
CuC	ẓuṛ	ẓaṛ	visit	K/H (vs. Z *ẓuṛ* AOR = PERF)
CuC	fuṯ	faṯ	pass	K/H (vs. Z *faṯ* AOR = PERF)
CuC:	šušš	šašš	look for, search	K/H (vs. Z *šušš* AOR = PERF)
C:uC	ssuḏ	ssaḏ	milk	K
C:uC	ḷḷuẓ	ḷḷaẓ~ḷḷuẓ	be hungry	K/H (vs. Z *ǧǧuẓ* AOR = PERF)

Verbs with alternation *u* ~ *a* in Aorist and Perfective

The following two verbs of the type *C:aC* ~ *C:uC* have free variation between *a* and *u* in both Aorist and Perfective (i.e. Perfective = Aorist).

AOR = PERF	Translation	Variety
ggall~ggull	swear	K/H (cf. Z *ggažž~ggužž*)
ẓẓaḷḷ~ẓẓuḷḷ	pray	K/H (cf. Z *ẑẑaž~ẑẑuž*, *ẓẓaž~ẓẓuž*)

4.3.1.3. Perfective *-i/a* Vowel Alternation

Some verbs insert a final vowel in the Perfective, while in others (V-final verbs), the final vowel may be altered (either in the entire paradigm, or in specific persons). In all cases, the final vowel has alternation in the Perfective: *-i* appears in the 1S and 2S, and *-a* in the rest of the paradigm (cf. Section 4.2.1.3 on *-i/a* alternation in the Aorist).[313] Vowel alternation in the Perfective is much more common than vowel alternation in the Aorist, and is found in all Senhaja varieties. This feature is found in verbs of different types. The following examples are pan-Senhaja:

A. C-final verbs:

1) C-final verbs, e.g. *kk*, PERF *kki/a* ‘give’; *ḵes*, PERF *ḵsi/a* ‘herd’;

B. V-final verbs:

2) *u*-final verbs, e.g. *ẓẓu*, PERF *ẓẓi/a* ‘plant’; *bnu*, PERF *bni/a* ‘build’;
3) *i*-final verbs, e.g. *ġeṭṭi*, PERF *ġeṭṭi/a* ‘to cover’; *ḫwi*, PERF *ḫwi/a* ‘to empty’.[314]

[313] Verbs that show *i/a* alternation in the Aorist in Zerqet remain unchanged in the Perfective. Such verbs typically correspond to the unchanged *-i* in the Aorist in Hmed (and usually in Ketama, too), and *i/a* in the Perfective.

[314] Some verbs that have the final *i/a* alternation in the Perfective across Senhaja, have the *i/a* alternation in the Aorist in Zerqet, e.g. *ġenni* (Zerqet *ġenni/a*) ‘to sing’.

The Perfective relative form (RF) of *-i/a* alternating verbs has *a* preceding the suffix *-n*. The following examples are pan-Senhaja:

- *kk* 'give', PERF *kki/a*, RF *i-kka-n*;
- *k̲es* 'herd', PERF *k̲si/a*, RF *i-k̲sa-n*;
- *bnu* 'build', PERF *bni/a*, RF *i-bna-n*;
- *ḫwi* 'empty', PERF *ḫwi/a*, RF *i-ḫwa-n*.

A. Perfective *-i/a* of C-final verbs

1) Perfective *-i/a* of *C:* verbs

Verbs that consist of a single long consonant in the Aorist form Perfective by adding the vowel *-i* that alternates with *-a* in persons other than 1S and 2S, for example the verb *kk*, PERF *kki/a* 'to give'.[315] Other examples in this category include:

AOR	PERF	Transl.	Variety
nn	nni/nna	say	K (cf. H/Z AOR *ini*, P *nni/nna*)
ḡḡ	ḡḡi/ḡḡa	do/make	Z
ww	wwi/wwa	be ripe	H (Z *wwi/wwa* AOR = PERF)
yy	lli/lla	be	K (cf. Z *ili*, PERF *ǧǧi/ǧǧa*)

2) Perfective *-i/a* of *CC* verbs

Perfective of CC verbs is likewise usually derived by adding the vowel *-i* that alternates with *-a*.[316] For example, the verb *k̲es* 'to herd' has the Perfective *k̲si/a* across Senhaja. Other examples in this category include:

AOR	PERF	Transl.	Variety
les	lsi/lsa	dress	T/H (cf. K *res*, PERF *rsi/rsa*)
res	rsi/rsa	land	K/T/H
seb̲	sb̲i/sb̲a	drink	H, cf. K/T/B/Z *su* /sew/, PERF *swi/a*
ẓer	ẓri/ẓra	see	pan-Snh.

The following CC verbs have *e* (realized as *a* before the back consonant) in most Senhaja, corresponding to Ketama *e*~*u* (cf. Section 4.2.1.1).

[315] The verb *kk* 'to give' is originally a biradical verb that became *C:* type due to assimilation: **fk* > *kk*.

[316] As mentioned in the Introduction (cf. Section 1.8.1.2), very few CC verbs do not form Perfective in this way, but remain unaltered in the Perfective, cf. below, Section 4.3.2.1.

AOR	PERF	Transl.	Variety
naġ /neġ/	nġi/nġa	kill	pan-Snh. (K AOR *n(u)ġ*)
saġ /seġ/	sġi/sġa	buy	pan-Snh. (K AOR *s(u)ġ*)

B. Perfective *-i/a* of V-final verbs

Some verbs that end in the vowels *-u* or *-i* in the Aorist correspond to the final *-i/a* in the Perfective. Some examples follow.

Final *-u* > *-i/a*

Type	AOR	PERF	Translation	Variety
CCu	bnu	bni/a	build	pan-Snh.
CCu	bdu	bdi/a	start, begin	K/H/Z/T/B
C:u	ẓẓu	ẓẓi/a	plant	K/T/H/Z
C:u	ddu	ddi/a	walk, go	K/T/H/

As mentioned in the Introduction (Section 1.8.1.2), verbs that change the final *-u* in the Aorist to the final *-i/a* in the Perfective (rather than having the final *-a* in both Aorist and the Perfective) is an isogloss that distinguishes Senhaja from Tarifiyt (Kossmann 2017a: 98). Also, the vocalization in the Perfective of *CC* and *CCV* verbs is the same (for example, we find *nġi/nġa* as Perfective of *naġ* /neġ/ 'kill', and *bni/bna* as Perfective of *bnu* 'build'), while in Tarifiyt, the alternating vowel in such verbs differs (Kossmann 2017a: 99), making it another isogloss.

Final *-i* > *i/a*

Type	AOR	PERF	Translation	Variety
CCi	ḫwi	ḫwi/a	empty	K/T/H/Z
CCi	qli	qli/a	fry	K/T/Z (H *qyi*, P *qyi/a*)
iCi	ili	ǧǧi/a	be	Z (cf. K *yyi*, P *lli/a*)
C:i	rri	rri/a	return (trans.)	K

Arabic stem II verbs of the CC:V type also belong to this category, e.g.

AOR	PERF	Translation	Variety
(s)bekki	(s)bekki/a	make cry	K/T/S/H/Z
ġelli	ġelli/a	make expensive	K/T/S/H/B

In Zerqet, the *-i/a* alternation can occur both in Aorist and in Perfective, and in this case, the stems are homophonous, different from most other varieties:

Zerqet	**Ketama/Taghzut/Hmed**		**Translation**
AOR = PERF	**AOR**	**PERF**	
nhi/nha	nhi	nhi/nha	warn
ɛelli/a	ɛelli	ɛelli/a	ascend
seqṣi/a	seqṣi	seqṣi/a	ask
ġelli/a	ġelli	ġelli/a	make expensive
ḥeffi/a	ḥeffi	ḥeffi/a	make blunt

The following verbs have distinct Aorist and Perfective in Taghzut and Hmed, while the Aorist = Perfective in Ketama and Zerqet:

Ketama/Zerqet	**Taghzut/Hmed**		**Translation**
AOR = PERF	**AOR**	**PERF**	
tġeddi/a	tġeddi	tġeddi/a	lunch
tlaqi/a	tlaqi	tlaqi/a	meet

There are also *u* and *i*-final verbs that remain unchanged in the Perfective, having no alternation, for example:

***u*-final AOR = PERF verbs**				***i*-final AOR = PERF verbs**			
Type	**Verb**	**Transl.**	**Variety**	**Type**	**Verb**	**Transl.**	**Variety**
C:u	ttu	forget	K/Z (H *ṭṭu*)	**C:i**	žži	heal	K/H/Z/T
CCu	nṭu	climb	K	**CCi**	rwi	escape	K/H/B
C:Cu	ttru	cry	K/B/Z	**CC:i**	ḥemmi	love	K/H

Some verbs are *-i* final in Ketama and Hmed, corresponding to *-el* in Zerqet (and *-el* or *-ež* in Taghzut). In this case, Zerqet and Taghzut have Aorist = Perfective, vs. Ketama/Hmed:

AOR	**PERF**	**Transl.**	**Variety**
ḫemmi	ḫemmi/a	clean	K/H (cf. T/Z *ḫemmel*, AOR = PERF)
rgi	rgi/a	close	K/H (cf. Z *rgel*, T *rgež*, AOR = PERF)
šelli	šelli/a	wash	K/H (cf. T/Z *šellel,* AOR = PERF)

Special cases

The following verb has varying final vowel in the Aorist, and *i/a* alternation in the Perfective:

AOR	Variety	PERF	Variety	Translation
ḥfu~ḥfa~ḥfi	K/H~K/Z~H/T	ḥfi/a	K/T/H/Z	be blunt

As both *u*-final verbs and *i*-final verbs can correspond to *i/a* in the Perfective, this can lead to homonymy in some verb forms. Thus, Ketama verbs *rru* 'to add' (cf. Z *rnu*) and *rri* 'to return' have the same Perfective *rri/a*.

The verbs 'to drink' and its causative counterpart 'to irrigate' have *-i/a* alternation in the Perfective. The verb *su* 'to drink' is underlyingly /sew/ in most Senhaja varieties (K/T/S/B/Z), Perfective *swi/a*, while Hmed has *seḇ*, Perfective *sḭ̄i/sḇa*. The causative counterpart of this verb is *ssu* (/ssew/) in most varieties (while Hmed has *sseḇ*), with the lexicalized meaning 'to irrigate'.[317] It is homophonous or partly homophonous (depending on the dialect) with the verb *ssu* 'spread a resting place' ('prepare the floor/ground for sitting/sleeping').

4.3.1.4. Special Alternation in Ketama and Taghzut

1) Aorist Ø~*u* Alternating Verbs (Ketama)

Verbs that have Ø~*u* alternation in the Aorist in Ketama (cf. Section 4.2.1.1) do not have an alternation in the Perfective. Hence, there is a difference in forms without PNG suffixes (3MS, 3FS and 1P), as in these persons, there is a vowel *u* in the Aorist, but no *u* in the Perfective, e.g. the verb *kker* 'get up', AOR:1P *n-kkur* vs. PERF:1P *n-ekker*. All verbs discussed in Section 4.2.1.1 belong to this category, e.g. *ff(u)ġ* 'to go out'. In the rest of Senhaja, where there is no variation in the Aorist, the Perfective stem is homophonous with the Aorist.

2) Perfective Ø~*a* Alternation (Taghzut, Ketama)

The verb *sell* 'to listen' that optionally shows *Ø/i* alternation in the Aorist 2P and 3P, optionally has *Ø/a* alternation in the Perfective 2P and 3P, and no vowel in the rest of the paradigm. The forms with *a* are becoming rare in Ketama, but are still found in Taghzut. Compare the Aorist and Perfective 2P and 3P forms of this verb:

[317] The meaning 'to cause to drink' is preserved in Hmed.

	AOR	PERF
2P	a t-selli-m~ a t-sell-em	h-sell-em ~h-sella-m
3P	a selli-n ~ a sell-en	sell-en ~sella-n

4.3.2. Aorist = Perfective

4.3.2.1. Aorist = Perfective across Senhaja

Many verbs have identical Aorist and Perfective stems. Among them, triradical verbs (CCC and CC:C) are most frequent.

1) CCC and CC:C verbs

Most verbs of CCC type (which is the most frequent type in our database) remain unaltered in the Perfective. The following examples are pan-Senhaja:

AOR = PERF	Translation	AOR = PERF	Translation
ḫḏem	work	ḵrez	plow
ḵmez	scratch	ḵšem	enter

Verbs with the underlying schwa that is realized as *a* before a back consonant (cf. Section 2.2.3.1) also belong to this category, e.g.

AOR = PERF	Translation	Variety
ḥraq /ḥreq/	burn	pan-Snh.
dfaɛ /dfeɛ/	push	K/H/Z

Verbs of the CC:C type (i.e. triradical verb with a long second radical, including stem II causatives) also have homophonous Aorist and Perfective. The following examples are pan-Senhaja:

AOR = PERF	Translation	AOR = PERF	Translation
ḫelleṣ	pay	seḫḫen	make hot
ḥenneḵ	mud plaster	ṭuwwel	make long
qeṣṣeṛ	make short	wessaɛ /wesseɛ/	make wide

2) CC, C:C, CC:, and C:C: verbs

a) CC verbs

The majority of biradical verbs form Perfective by adding the vowel *i* that alternates with *a* (see Section 4.3.1.3). However, there are also some rare examples of biradical verbs that remain unaltered in the Perfective. The following are all examples in our database:

AOR = PERF	Transl.	Variety	AOR = PERF	Transl.	Variety
ġeẓ	dig	H	res	land	H[318]
ḏer	fall	S	rez	return (trans.)	H/Z

As mentioned in the Introduction (cf. Section 1.8.1.2), the difference between the *CC** (with an alternating vowel in the Perfective) and *CC* (without a vowel in the Perfective) classes of verbs is an isogloss that distinguishes Senhaja from Tarifiyt (cf. Kossmann 2017a: 98), although not all Senhaja varieties preserve this difference.

b) C:C verbs

Most verbs of C:C type have homophonous Aorist and Perfective. The following examples are pan-Senhaja:

AOR = PERF	Translation	AOR = PERF	Translation
ddez	pound	ṭṭef	catch
kkes	remove	ṭṭeṣ	sleep
qqen	tie	wweṭ	hit

Verbs that have *u*~Ø variation in the Aorist in Ketama (discussed in Section 4.2.1.1), have no *u* in the Perfective, and hence, the Perfective stem and the Aorist stem differ (at least in those persons where the *u* is absent), see Section 4.3.1.4.

c) CC: and C:C: verbs

Verbs of CC: and C:C: type have homophonous Aorist and Perfective, e.g. (pan-Snh.)

AOR = PERF	Translation	AOR = PERF	Translation
ġezz	chew	hezz	shake
ḥebb	love	k(k)ebb	pour

[318] Vs. Ketama *res,* PERF *rsi/rsa*.

3) CCCC verbs

Quadriradical verbs (which are often made up of reduplicated stems) have homophonous Aorist and Perfective, e.g.

AOR = PERF	**Translation**	**Variety**
bergeg	gossip, inform	pan-Snh.
bežbež	be flooded, drenched	K/H/Z
čenčef	pull hair	H/B/Z
qefqef	shiver, tremble	K/Z/H

4) *u-* and *i*-initial verbs

While *a*-initial verbs form Perfective by the change of *a-* to *u-* (Section 4.3.1.1), *u-* and *i*-initial verbs can remain unchanged, e.g.[319]

Type	**AOR = PERF**	**Translation**	**Variety/Notes**
iCi	iẓi	fight	H/Z (K *aẓi*, PERF *uẓi*)
uCCa	uɛla	be tall	Z (Bunjel/Wersan)
uC:	uff	swell	Z
uCu	usu	cough	S/H

The following verbs start in *u-* in Hmed, corresponding to *a-* in other varieties. In Hmed, Perfective = Aorist, while in other varieties, the initial *a-* > *u-* in the Perfective:

Type	**AOR = PERF**	**Translation**	**Variety/Notes**
uCuC	uẓum	fast	H, cf. *aẓum* in the rest of Snh.
aCi	uġġi	be stuck	H, cf. Z *aġel*
uCi	uḥi	be tired	H, cf. Z *aḥel*

The following *u*-initial verb of the type *uC:^{w}* has *i/a* alternation in the Perfective (cf. Section 4.3.1.3):

Type	**AOR**	**PERF**	**Translation**	**Variety**
uC:^{w}	ugg^{w}	ugg^{w}i/a	knead	Z

[319] Most V-initial verbs are *a*-initial (43 examples in our database). All *i-* and *u*-initial verbs are listed in this section.

5) Varia

The following verbs with a plain vowel in their stem (of various types) have Aorist = Perfective:

Type	Verb	Transl.	Variety	Type	Verb	Transl.	Variety
C:i	žži	heal	pan-Snh.	**CaCC**	zaḥem	crowd	H
C:u	ttu	forget	K/Z	**C:Cu**	ttru	cry	K/B/Z
CCi	ḥsi	fall	K/H	**CCaC**	ɛyaṛ	play	pan-Snh.
CCu	nṭu	climb	K	**CCuC**	ḏkur	be full	H/B/Z
C:iC	qqim	stay	pan-Snh.	**CCuC**	mġuṛ	grow	pan-Snh.
C:uC	qquṛ	be dry	K/Z	**CiCC**	siwel	speak	Z

4.3.2.2. Aorist = Perfective in Specific Varieties

A certain verb can belong to the Aorist = Perfective category in one Senhaja variety, but to the Aorist ≠ Perfective category in another. This is usually related to the formal makeup of the verb, which can differ per dialect due to the phonological changes that took place. For example, the following verbs end in *-el* in Zerqet (Aorist = Perfective), but in *-i* in Ketama and Hmed (corresponding to the alternating *-i/a* in the Perfective, see Section 4.3.1.3):

Type	AOR = PERF	Translation	Variety/Notes
CCC	rgel	close	Z (vs. K/H *rgi*, P *rgi/a*)
CC:C	beddel	change	Z (vs. K/H *beddi*, P *beddi/a*)
CC:C	ḫemmel	clean	Z (vs. K/H *ḫemmi*, P *ḫemmi/a*

The following verb has a different shape in different Senhaja varieties. In Ketama, the original Imperfective stem has been reinterpreted as the Aorist. In Hmed and Zerqet, the verb is *a*-initial, and forms Perfective by the change of *a-* to *u-* (cf. Section 4.3.1.1):

AOR = PERF	Translation	Variety
ttares	be owed money to	K (vs. H/Z *ares*, P *ures*)

As mentioned above, some verbs are *u*-initial in Hmed (and hence remain unchanged in the Perfective), but *a*-initial in other varieties (corresponding to *u-* in the Perfective), e.g.

AOR = PERF	Transl.	Variety
uẓum	fast	H (vs. *aẓum*, PERF *uẓum* in the rest of Snh.)

Finally, some verbs have the same makeup across Senhaja, but there is a difference in the Perfective. Thus, in Zerqet, verbs with the medial *u* (hollow verbs) usually remain unchanged in the Perfective, while *u* can change to *a* in Ketama and Hmed (cf. Section 4.3.1.2), e.g.

AOR (all), PERF (Z)	PERF (K/H)	Transl.	AOR (all), PERF (Z)	PERF (K/H)	Transl.
dub	dab	melt	ṣuḏ	ṣaḏ	blow
ẓuṛ	ẓar	visit	ẓun	ẓan	divide

4.3.3. The Perfective of *s*-derived and *s*-initial Verbs

Verbs starting in *s*- (*s*-derived causatives, or other verbs verbs starting in *s*- and thus similar to causatives) have some peculiarities when it comes to the formation of Perfective and Imperfective. Some of them form Perfectives by means of apophony (a change in the vowel). In many cases, Perfective and Aorist are homophonous, as for underived verbs.

4.3.3.1. The Perfective Distinct from the Aorist

Causatives that have a vowel *u* or *i* can change the vowel to *a* in the Perfective, while those that have *a* may change the vowel to *u*. If the causative ends in a vowel, it often has *-i/a* alternation in the Perfective. Examples follow.

Initial *u* > *a* and *i* > *a*

The change *u* > *a* in the initial position (following the *s*-prefix and preceding the first consonant of the root) is found in Ketama and Hmed, but not in Zerqet. For the change *i* > *a*, there is also dialectal variation: in Western Senhaja, the change is obligatory; in Hmed, the change may be optional; in Eastern Senhaja (Bunsar/Zerqet), the vowel remains unaltered. Consider the following examples:

***u* > *a* (not in Zerqet)**

AOR	PERF	Translation	Variety	Base
ssufaġ /e/	ssafaġ /e/	make go out	K/T/H	ff(u)ġ ‘go out’

***i* > *a* (not in Zerqet)**

AOR	PERF (S/T)	PERF (H)	Transl.
ṣṣiweḏ	ṣṣaweḏ	ṣṣaweḏ~ṣṣiweḏ	make arrive (< *aweḏ* 'arrive')
ssif(e)f	ssaff	ssif(e)f~ssaf(e)f	winnow

In the following sibilant-initial verbs, the vowel likewise changes from *u* to *a* in the initial position (following the sibilant). These verbs have no base counterparts, and are not semantically causatives.

AOR	PERF	Transl.	Variety	AOR	PERF	Transl.	Variety
susef	sasef	spit	T/H	ssumm	ssamm	suck	T/H
ssuḏ	ssaḏ	milk	K	zzuġer	zzaġer	drag	K

In Zerqet, the vowel remains the same in the Perfective, and AOR = PERF. This is also possible in Hmed:

AOR = PERF	Translation	Base	Translation	Variety
ṣṣuḏeḏ, ssuḏeḏ	nurse (trans.)	ṭṭeḏ	nurse (intr.)	H, Z
ssuẓum	make fast	uẓum	fast	H
ssufaġ /e/	make go out	ffaġ /e/	go out	Z
ssuḏeṣ	make sleep	ṭṭeṣ	sleep	Z

Initial *a* > *u* (Zerqet)

Some causatives in Zerqet change *a* in the initial position to *u*, e.g.

AOR	PERF	Translation	Base	Translation	Variety
ssaḥel	ssuḥel	make tired	aḥel	be tired	Z[320]
ssali	ssuli	make ascend/ride	ali	ascend/ride	Z
ssani	ssuni	bring a bride	---	---	Z[321]

The vowel *a* in the initial position remains unchanged in Hmed, e.g.

CAUS:AOR = PERF	Translation	Base	Translation	Variety
ssaru	make give birth	aru	give birth	H
ssazaġ	make dry	azaġ	be dry	H

[320] Compare Hmed *ssuḥi* 'make tired', Perfective *ssuḥi/a* from the base *uḥi* 'be tired'.

[321] Cf. Hmed *ssani* 'to make ride', Perfective *ssani/a* from the base *ani* 'to ride'.

Medial *u* > *a*

In some verbs, the *u* changes to *a* in the medial position (after C1). This change can be optional, especially in Hmed.

AOR	PERF	Translation	Base	Translation	Variety
sɛum	sɛam (~sɛum)	make swim	ɛum	swim	K/H
sbukk	sbakk	make explode	bbukk	explode	K

In some verbs, the vowels *a* and *u* are in free variation in both aspects:

AOR = PERF	Translation	Base	Translation	Variety
sbakk~sbakk	make explode	bbukk	explode	T/H/Z
sgall~sgull (T/H), sgažž(~sgužž) (Z)	make swear	ggall~ggull (T/H), gažž~gužž (Z)	swear	T/H/Z

Final *-u* and *-i* > *-i/a* alternation

In some verbs, the final *-u* and *-i* correspond to the alternating *-i/a* in the Perfective. In Hmed, with *i*-final verbs, the final *-i* can remain unchanged in the Perfective.

-u* > *-i/a

AOR	PERF	Transl.	Base	Transl.	Variety
sseḥmu	sseḥmi/a	make hot	ḥmu	be hot	K/T/Z[322]
ssebḏu	ssebḏi/a	make start	bḏu	start	H
ssu /ssew/	sswi/a (K), ssi/a (S)	irrigate	su /sew/	drink	K/S

In the following *u*-final verbs, the vowel remains unchanged in the Perfective:

CAUS:AOR = PERF	Translation	Base	Translation	Variety
ssetru	make cry	ttru	cry	Z
ssu /ssew/	make drink, irrigate	su /sew/	drink	T/Z-Bunj.

***-i* > *-i/a* (Hmed: *-i* > *-i/a* or *-i* = *-i*)**

AOR	PERF	Translation	Base	Transl.	Variety
ssani	ssani/a	make ride	ani	ride	T/H
sseḫwi	sseḫwi/a	make empty	ḫwi	be empty	K/H/Z
sserḫi	sserḫi/a	make descend	rḫi	descend	K

[322] Compare Hmed causative *sseḥmi* (also used in Ketama).

In some verbs in Zerqet, the final *-i/a* alternation is found both in the Aorist and in the Perfective (Aorist = Perfective). In Hmed, the alternation is only found in the Perfective (alongside the forms without alternation):

AOR: H	**PERF: H** **AOR = PERF: Z**	**Translation**	**Base**	**Translation**
sselhi	sselhi/a	distract	lhi (H), lhi/a (Z)	be distracted
sseḥfi	sseḥfi/a	make blunt	ḥfi (H), ḥfi/a (Z)	be blunt
sɛelli	sɛelli/a	make ascend	ɛelli (H), ɛelli/a (Z)	ascend

Insertion of *-i/a* after the last consonant

Some causatives derived from CC verbs insert *-i/a* after the final consonant. This has been found in Taghzut, Hmed, and Zerqet. However, in these same varieties, the Perfective can also remain unaltered (for the same verbs).

AOR (T/H/Z)	**PERF = AOR (T/H/Z)**	**PERF (T/H/Z)**	**Translation**	**Base**	**Translation**
sraġ /e/	sraġ /e/	sserġi/a	make hot	raġ /e/	be hot
ṣd̲eṣ	ṣd̲eṣ	ṣṣed̲ṣi/a	make laugh	d̲eṣ	laugh
ṣġeṛ	ṣġeṛ	sseġri/a	make study	ġer	study

4.3.3.2. Aorist = Perfective

Many causative verbs do not distinguish between the Aorist and the Perfective stems. This is true for causatives derived from triradical verbs (across Senhaja), as well as for the causatives of some other verb types (with dialectal differences). The following table shows examples of causatives derived from triradical verbs that have Perfective identical to the Aorist.[323]

Perfective = Aorist in causatives of CCC verbs

CAUS	**Transl.**	**Base**	**Transl.**	**Variety**
ssebd̲eg	make wet	bd̲eg	be wet	K/Z
sseḳ̲šem	make enter	ḳ̲šem	enter	pan-Snh.
ssehyeḳ̲	make sick	hyeḳ̲	be sick	K/H[324]

[323] There are also some cases where Aorist = Perfective in some Senhaja varieties, while Aorist is dictinct from the Perfective in other varieties (Section 4.3.2.2).

[324] Cf. Taghzut *hžeḳ̲*, causative *ssehžeḳ̲*, Zerqet *hleḳ̲*, causative *ssehleḳ̲*.

The following table shows causatives derived from various verb types that have Perfective stem equal to the Aorist. There are, however, dialectal differences, as in parts of Senhaja, such verbs may have Perfective distinct from the Aorist, as described above.

Type	CAUS	Translation	Base	Translation	Variety
C:	ssečč	make eat	ečč	eat	Z (Bunjel)
CC	sres	make go down	res	go down	K/T/H
CC	ṣḏeṣ	make laugh	ḏeṣ	laugh	T/H
CC	zznez	sell	nez	be sold	K
C:C	ssuḏeḏ	nurse (trans.)	ṭṭeḏ	nurse (intr.)	H/Z
C:C	ssufaġ /e/	make go out	ffaġ /e/	go out	Z
C:Cu	ssetru	make cry	ttru	cry	Z
CCuC	ssemġuṛ	make grow	mġuṛ	grow	T/H/B/Z

4.3.4. The Perfective of *t*- and *n*-derived Verbs

The Perfective of *t*- and *n*-derived verbs largely follows the same rules as that of underived verbs. The Perfective may be formed by a change in a vowel. In Hmed, some Perfectives have final *-i/a* alternation, which makes them different from the Aorist, while in Ketama and Zerqet, the alternation is usually present in both stems.

4.3.4.1. The Perfective Distinct from the Aorist

Vocalic changes

The following verbs found in Hmed derive the Perfective by a change in a vowel ($a > u$, $u > a$, $i > a$).

AOR *t*-	AOR *n*-	PERF *t*-	PERF *n*-	Translation
tsugg[325]	nsugg	tsagg	nsagg	be driven
tqis[326]	nqis	tqas	nqas	be tasted
ttayem	nnayem	ttuyem	nnuyem	be drawn (water)

[325] In Ketama, both *tsugg* and *tsagg* may be used as the Aorist, and *tsagg* as the Perfective.

[326] In Ketama, *tqis* and *tqas* in the sense 'be touched' (rather than 'be tasted') are used as the Aorist, while *tqas* is the Perfective.

Final *-i/a* alternation

a) V-final verbs

Some V-final verbs have *-i/a* alternation in the Perfective in Hmed and Taghzut, different from the Aorist. In other varieties (Ketama, Zerqet, Seddat), the alternation may be present in both stems, and hence, AOR = PERF (see below). The following examples are from Hmed:

AOR *t-*	**AOR *n-***	**PERF *t-***	**PERF *n-***	**Translation**
ttešɛi	nnešɛi	ttešɛi/a	nnešɛi/a	be switched on
twerri	nwerri	twerri/a	nwerri/a	be shown
tṣeffi	nṣeffi	tṣeffi/a	nṣeffi/a	be sieved

b) C-final verbs

Some verbs derived from the *CC*-type base have *-i/a* alternation in the Perfective following the final consonant of the verb. The examples are found in Hmed, Seddat, and Bunsar. In Ketama, the situation is either as in Hmed (Aorist in *-CC* > Perfective *-i/a*), or alternation *-i/a* is found both in the Aorist and the Perfective. The following examples are from Hmed:

AOR *t-*	**AOR *n-***	**PERF *t-***	**PERF *n-***	**Translation**
tnaġ /e/	nnaġ /e/	ttenġi/a	nnenġi/a	be killed
tṣaġ /e/	nṣaġ /e/	tteṣġi/a	nneṣġi/a	be bought
tk̲es	nk̲es	tteḵsi/a	nneḵsi/a	be herded

4.3.4.2. Aorist = Perfective dialectally

As mentioned previously, verbs that have *-i/a* alternation in the Aorist in Ketama and Zerqet remain unaltered in the Perfective. Their counterparts in other varieties (Taghzut, Hmed, Bunsar) lack the alternation in the Aorist, and have *i/a* in the Perfective.

AOR *t-*: T/H/B	**AOR *n-*: T/H/B**	**AOR *t-*: K/Z = PERF (all)**	**AOR *n-*: K/Z = PERF (all)**	**Translation**
tteẖwi	nneẖwi	tteẖwi/a	nneẖwi/a	be emptied
tteqli, tteqyi (H)	nneqli, nneqyi (H)	tteqli/a, tteqyi/a (H)	nneqli/a, nneqyi/a (H)	be fried

4.3.4.3. Aorist = Perfective

Many *t-* and *n*-derived verbs (especially those derived from CCC and CC:C bases) do not formally distinguish between the Perfective and Aorist stems. The following examples are pan-Senhaja:

***t*-derived**	***n*-derived**	**Translation**	**Base**	**Translation**
ttɛɛzel	nnɛɛzel	be separated	ɛzel	separate
tɛellaq /e/	nɛellaq /e/	be hung	ɛellaq /e/	hang

Passives derived by the prefix *t-* of stem II causatives with an optional *s-* likewise remain unaltered in the Perfective (Hmed), e.g. *ttesḍeḥḥek* (AOR = PERF) 'be made laugh'.

4.3.5. The Perfective of *ttya/ttwa*-derived Verbs

4.3.5.1. The Perfective Distinct from the Aorist

Most verbs derived with the prefixes *ttya-, tta-, ṭṭuya-, ttwa-* do not formally distinguish between the Aorist and the Perfective. However, there are some exceptions. We will first present these exceptions, and then provide examples of homophonous Aorist and Perfective stems.

The passive derivation of the verb *ek(k)* 'to give' in Ketama has two alternative Aorist forms: *ttyak(k)* or *ttyakki/ttyakka*. The Perfective is *ttyakki/ttyakka* (never *ttyak(k)*):

AOR	**PERF**	**Translation**	**Base**	**Variety**
ttyak(k)~ttyakki/a	ttyakki/a	be given	kk	K

In Taghzut, the Perfectives of some *ṭṭya*-derived verbs from *a*-initial bases optionally change the vowel *a* to *u*. This variant is in free variation with the invariable *ṭṭya*, in which case Aorist = Perfective, e.g.

AOR	**PERF**	**Translation**	**Base**	**Variety**
ṭṭyaker	ṭṭyaker~ṭṭyuker	be stolen	aker	T
ṭṭyari	ṭṭyari~ṭṭyuri	be written	ari	T
ṭṭyani	ṭṭyani~ṭṭyuni	be ridden	ani	T

This does not apply to all *a*-initial verbs, however, and some of them show no such alternations, e.g.

AOR = PERF	*PERF	Translation	Base	Variety
ṭṭyasi	*ṭṭyusi	be carried	asi	T
ṭṭyawi	*ṭṭyuwi	be taken	awi	T

Verbs with the final *-i/a* alternation in the Perfective

In the Hmed variety, verbs with the final *-i/a* alternation in the Perfective have a stable *-i* in the Aorist, e.g. *ṭṭuyawi* (AOR) > PERF *ṭṭuyawi/ṭṭuyawa* 'be taken'.

In Ketama and Zerqet, the final vowel alternates both in the Aorist and the Perfective, and thus, the two stems have the same form, e.g. *ttyabni/a* (K), *ttwabni/a* (Z), AOR = PERF 'be built'.

A given verb may have an alternating vowel in the Perfective in Hmed, but a stable vowel in Ketama, e.g.

AOR = PERF: K	AOR: H	PERF: H	Translation
ttyawi	ṭṭuyawi	ṭṭuyawi/a	be taken

Some verbs have a stable final *-i* in both Aorist and the Perfective across Senhaja. In this case, Perfective = Aorist, e.g.

AOR = PERF: K	AOR = PERF: H	AOR = PERF: Z	Translation
ttyasi	ṭṭuyasi	ttwasi	be carried

4.3.5.2. Aorist = Perfective

Some examples of verbs that do not formally distinguish between the Perfective and Aorist follow.

AOR = PERF	Translation	Variety
ttwabni/ttwabna	be built	Z
ttwaḫ̲d̲em	be worked	Z
ttyak̲er (K), ṭṭuyak̲er (H), ttwak̲(k̲)^{w}er (Z)	be stolen	K/H/Z
ttwassels	be worn	Z
ttyahezz	be lifted	K

4.4. The Perfective Negative (Mezduy, Parts of Zerqet)

The negative verb stems are only found in Mezduy and parts of Zerqet (Wersan, abbreviated as W in the tables below), but are absent in most Senhaja varieties.[327] There are Perfective Negative stems and Imperfective Negative stems (on the Imperfective Negative, cf. Section 4.6).

The Negative Perfective is derived from the Perfective. In cases where PERF.NEG is different from PERF (positive), it is derived by the vowel change (*a* > *i*) or insertion (Ø > *i*). The vowel *a* changes to *i* in the following examples:

Type	**AOR**	**PERF**	**PERF.NEG**	**Translation**	**Variety**
CCaC	ḏhaṛ	ḏhaṛ	ḏhir	appear	W/M
CCiC	ḏɛif	ḏɛaf	ḏɛif	lose weight	W/M
CiC	ɛiš	ɛaš	ɛiš	live	W[328]

However, the following verbs of CaC type have *a* in the Perfective, which remains unchanged in PERF.NEG (the following examples are common to Wersan and Mezduy; A = P stands for Aorist = Perfective):

A = P	**PERF.NEG**	**Transl.**	**A = P**	**PERF.NEG**	**Transl.**
faṯ	faṯ	pass	žaf	žaf	choke

Verbs without any plain vowel (e.g. *C:C* and *CCC* type) insert *i* before the final consonant. The following examples are common to Wersan and Mezduy:

A = P	**PERF.NEG**	**Transl.**	**A = P**	**PERF.NEG**	**Transl.**
ssen	ssin	know	nġeḏ	nġiḏ	thresh
zzeḡ	zziḡ	milk	ḵšem	ḵšim	enter

Unlike in Tarifiyt, in Wersan/Mezduy, *i* insertion applies to verbs with a long second radical (*CC:C* type), e.g.

A = P	**PERF.NEG**	**Transl.**	**Var.**	**A = P**	**PERF.NEG**	**Transl.**	**Var.**
beddel	beddil	change	W	ġellel	ġellil	milk	W
bedder	beddir	change	M	ġeğğer	ġeğğir	milk	M

[327] This section discusses data from the Wersan dialect of Zerqet and the Lahsen dialect of Mezduy (M in the tables below).

[328] In Mezduy, this verb has the stem *ɛiš* in the Perfective (= Aorist).

Insertion of *i* before the last consonant also applies to *a*-initial verbs (*aCC* and *aC:C* types):

Type	AOR	PERF	PERF.NEG	Translation	Variety
aCC	ak̲ʷer	uk̲ʷer	uk̲ʷir	steal	W/M
aCC	awed̲	uwed̲	uwid̲	arrive	W/M
aC:C	azzel	uzzel	uzzil	run	W
aC:C	azzer	uzzer	uzzir	run	M

In Senhaja (Wersan and Mezduy), the PERF.NEG *i* became generalized to longer stems. For example, *i* can be inserted also in cases when the stem has more than three consonants (different from Tarifiyt), e.g.

AOR	PERF	PERF.NEG	Translation	Variety
qefqef	qefqef	qefqif	shiver	W/M

The same rule applies to some derived causatives (including those with an internal plain vowel, as in the following example):

AOR	PERF	PERF.NEG	Translation	Notes	Variety
ssufeġ	ssufeġ	ssufiġ	make go out	Causative of *ffeġ*	W/M

Verbs that have *-i/a* alternation in the Perfective (positive), have no alternation in PERF.NEG, but have the final *-i* in all persons. The following examples are common to Wersan and Mezduy:

AOR	PERF	PERF.NEG	Transl.	AOR	PERF	PERF.NEG	Transl.
kk	kki/a	kki	give	as	usi/a	usi	come
ini	nni/a	nni	say	ẓer	ẓri/a	ẓri	see
ili	ǧǧi/a	ǧǧi	be	bdi	bdi/bda	bdi	start
af	ufi/a	ufi	find	mḥi	mḥi/a	mḥi	erase

When the plain vowel of the Perfective is *u*, it remains unchanged in the Perfective Negative (W/M):

Type	AOR	PERF	PERF.NEG	Translation
aCu	aru	uru	uru	give birth
aCuC	aẓum	uẓum	uẓum	fast

4.5. The Imperfective

The Imperfective stem is almost always (with rare exceptions, see Section 4.5.5.3) different from the Aorist. There are different ways to form an Imperfective stem, such as:

1) consonant (C2) gemination;
2) C1 gemination combined with other features (e.g. *u* insertion);
3) prefixation of *t(t)-*;
4) vowel insertion;
5) insertion of the final *-i/a* (Ketama/Taghzut) or *-ay* (Hmed/Zerqet).

Combination of the above strategies is also possible, most typically:

1) prefixation of *t(t)-* + insertion of *-a* before the final consonant;
2) prefixation of *t(t)-* + insertion of the final *-i/a* (K/T) or *ay* (H/Z).

There are also irregular and suppletive Imperfectives. The same verb can have multiple Imperfective stems within the same dialect used in free variation. There are also dialectal differences: some types of Imperfectives are more commonly found in specific dialects. All these differences are discussed in this section.

4.5.1. Consonant Gemination

The Imperfective is often formed by a consonant gemination. Most commonly, it is the second radical (C2) which is geminated. Imperfectives formed in this way are found across Senhaja. Imperfectives with other types of gemination are specific to some Senhaja varieties. In some Imperfectives, the first consonant (C1) is (optionally) geminated, combined with the insertion of the vowel *u* before the last consonant. The resulting Imperfective stem has the type *C(:)CuC* (cf. Section 4.5.2). Imperfectives of this type are common in Zerqet and Hmed. In Ketama, this type of Imperfective formation is very rare. However, in Ketama, some Imperfectives optionally lengthen C1 in addition to C2. In other words, C2 gemination can be the only means to form an Imperfective, while C1 gemination is combined with other changes (insertion of *u* or simultaneous C2 gemination). As described in Phonology (Section 2.1.2), the “long” counterpart of a consonant can be distinguished not only by length, but sometimes also by the place/manner of articulation.

Among Imperfectives that are formed by C2 gemination, the most typical scheme is CCC > CC:C, but other schemes are also found. Verbs that have the structure CCV (CCu and CCi) and CC can also form Imperfective by C2 gemination. Below follow some examples grouped together by the verb type.

1) CCC > CC:C

Most CCC verbs can form Imperfectives by C2 gemination. This does not exclude other types of Imperfective formation for the same verb type, such as *t(t)*-prefixation combined with the insertion of *a* before the final consonant (typical of Ketama), or (optional) gemination of C1 combined with the insertion of *u* before the final consonant (typical of Zerqet). C2 gemination is a common way to form the Imperfective stem across Senhaja, while other ways can be seen as morphological isoglosses. The following table provides some examples of *CCC > CC:C* Imperfectives, and also includes alternative Imperfectives.

AOR	**IPF**	**Transl.**	**Variety**	**Alternative IPF**
ġmeṣ	ġemmeṣ	cover	H/Z	K *tteġmaṣ*, H/Z *ġ(ġ)muṣ*
ḥfer	ḥeffer	dig	K/H/Z	Z *ḥḥfur*
ḥṛaq /e/	ḥeṛṛaq /e/	burn	H	H/Z *ḥ(ḥ)ṛuq*, K *tteḥṛaq*
ḥseb	ḥesseb	count	K/H	K *tteḥsab*
k̲mez	k̲emmez	scratch	K/H	H *k̲muz*, K *ttek̲maz*
mger	megger	harvest	S/H/Z	H/Z *m(m)gur*
sbaġ /e/	sebbaġ /e/	paint	H/B/Z	K *ttesbaġ*, Z *ssbuġ*
ẓṛaɛ /e/	ẓeṛṛaɛ /e/	sow	H	H/Z *ẓ(ẓ)ruɛ*, K *tteẓraɛ*

As described in Section 2.1.2, long counterparts of some consonants are distinguished not by length alone, but also by the place/manner of articulation. Below we present some examples for CCC verbs:

Pair	**AOR**	**IPF**	**Translation**	**Variety**
d̲–dd	**ḫd̲em**	ḫeddem	work	pan-Snh.
w–gg^{w}	rwel	regg^{w}el	escape	Z
w–gg	rwež	reggež	escape	T
l–ǧǧ (l–*ll)	mlek̲	meǧǧek̲	marry	Z
y–ll (*l–ll)	myek̲	melle k̲	marry	K/H
y–ǧǧ (*l–*ll)	myek̲	meǧǧek̲	marry	B
z–ddz	ḫzer	ḫeddzer	see	B
š–čč	k̲šem	k̲eččem	enter	T/S/H/B/Z
ž–ǧǧ	nžer	neǧǧer	carpenter	Z

2) CCV > CC:V

Most verbs of the type CCV geminate C2 in the Imperfective. Alternative Imperfectives are rare (but are possible). There are two subtypes: CCu and CCi.

CCu > CC:u

AOR	IPF	Translation	Variety	Notes
bnu	bennu	build	K/H/B/Z	
ḥmu	ḥemmu	be hot	H/Z	K IPF *tteḥmay* (rare)
rku	rekku	rot	K/H/Z	
rnu	rennu	add	H/Z	cf. K *rru*, IPF *terri/a*

CCi > CC:i

AOR	IPF	Translation	Variety	Notes
ḫ̲wi	ḫ̲ewwi	empty	K	H/Z IPF *ḫ̲eggʷi*
k̲mi	k̲emmel	finish	H	H IPF *k̲muy*
mḥi	meḥḥi	erase	K	H/Z IPF *m(m)ḥuy*
ngi	neggi	push	K/H/Z	
rgi	reggi	close	K/H/B	Z AOR *rgel*, IPF *reggel*

3) CC > CC:

Some *CC* verbs geminate the second consonant in the Imperfective:[329]

AOR	IPF	Translation	Variety	Alternative IPF
k̲es	k̲ess	herd	K/S/H	
les	less	wear clothes	H	H *ṭlusay*
d̲eṣ	d̲eṣṣ	laugh	K/H/B/Z	K *d̲eṣṣa*

4.5.2. C1 Gemination and Vowel Insertion

Some Imperfectives are formed by C1 gemination and insertion of a vowel (*a* or *u*) before the final consonant.

[329] Some *CC* verbs geminate the second consonant and insert *a* before the final consonant. This may be combined with the gemination of C1.

1) C1 gemination and insertion of *a* before the final consonant

a) CC > C:aC

Some verbs of CC type form Imperfectives by C1 gemination and insertion of *a* before the final consonant:

AOR	IPF	Transl.	Variety	AOR	IPF	Transl.	Variety
ġeṛ	qqaṛ	study	Snh.	saġ /e/	ssaġ /a/	buy	pan-Snh.
ġez	qqaz	dig	H	ẓer	ẓẓar	see	K/H
ṛeẓ	ṛṛaẓ	break	K/H/Z	ẓeḏ	ẓẓaḏ	grind	H/B/Z

b) CC > C(:)aC(:)

The verb *naġ* /neġ/ (~Ketama *n(u)ġ*) 'to kill' forms Imperfective by geminating both consonants (*n* > *nn* and *ġ* > *qq*) and inserting *a* before the final consonant in most Senhaja varieties.[330] Hmed lacks gemination of the initial *n-*, while the final consonant is realized as *q*. Presumably, *ġ* was originally geminated (*ġ* > *qq*), and then *qq* underwent degemination. The same feature is found in Hmed *raġ* /reġ/ 'to be hot, Imperfective *raq*.

AOR	IPF	Translation	Variety
naġ /e/	nnaqq	kill	K/Z (H *naq*)
raġ /e/	raq	be hot	H

2) C1 gemination and insertion of *u*

a) CCC > C:CuC

Some verbs of CCC type form Imperfectives by C1 gemination and insertion of *u* before the final consonant. This is frequent in Zerqet (especially Ikherruden) and Bunsar. The same formation seems at the basis of forms found in Hmed, where the gemination of the initial consonant is not audible. Hence, in Hmed, the Imperfective in this case is formed by inserting the vowel *u* before the final consonant. As most CCC verbs also have Imperfectives formed by geminating C1 (Section 4.5.1 above), the two type of Imperfectives often coexist. In Hmed, they are used interchangeably within the same dialect. In Zerqet, there are dialectal preferences: the Ikherruden dialect favors the *C:CuC*-type Imperfectives, while Bunjel favors the *CC:C* type. Some examples follow. When the first consonant is *ġ*, it corresponds to the long *ġġ* (and not *qq*) in Zerqet.

[330] In Ketama dialects of Beni Hmed and Sahel, the Imperfective of this verb is formed with the prefix *t-*, change of the vowel, and addition of the vowel *-a*: *tnaġa*.

AOR (H/Z)	IPF (H)	IPF (Z)	Translation	Alternative IPF
dfaɛ /e/	dfuɛ	ddfuɛ	push	H *deffaɛ /e/*
ġmeṣ	ġmuṣ	ġġmuṣ	cover	H/Z *ġemmeṣ*
ḥfer	ḥfur	ḥḥfur	dig	H/Z *ḥeffer*
k̲mez	k̲muz	k̲k̲muz	scratch	H *k̲emmez*
qṣem	qṣum	qqṣum	divide	H/Z *qeṣṣem*

b) CCi > C:Cuy

Some verbs of *CCi* type form Imperfectives by geminating the initial consonant and inserting the vowel *u* before the final *-i*, which is realized as *y* after *u*. (One could also say that the final *-i* changes to *-uy* in these examples.) This type of Imperfective is found in the same area as the *C(:)CuC* type above (i.e. Hmed, Bunsar, and Zerqet). Gemination of C1 is not audible in Hmed. Some examples common to Hmed and Zerqet varieties follow; Ketama Imperfectives are provided for comparison.

AOR	IPF (H)	IPF (Z)	IPF (K)	Translation
ɛṣi	ɛṣuy	ɛɛṣuy	tteɛṣay	disobey
fti	ftuy	fftuy	ttefti~fetti	recite
ġli	ġluy	ġġluy	tteġlay	boil
mḥi	mḥuy	mmḥuy	meḥḥi	erase
tki	tkuy	ttkuy	tk̲ay	press

4.5.3. Prefix *t(t)-*

Another way to form the Imperfective is by the use of the prefix *t(t)-* (or its variant *ṭ-* used in Taghzut and Hmed). The Imperfective prefix is realized differently depending on the variety and on the verb type. In Ketama, the prefix is realized as *tt-* before a vowel (including a schwa), e.g. *asi* 'to lift', Imperfective *ttasi*; *rfes* 'to knead', Imperfective *tterfas*; *qqen* 'to tie', Imperfective *tteqqen*. In Bunsar and Zerqet, the prefix is always realized as *t-*. In Taghzut and Hmed, the prefix is realized as *ṭ*. In Taghzut, there is a further optional development of *ṭ* into *s* (usually limited to specific examples). In the tables in this section, we write the prefix as *t(t)-* when the form is valid across several Senhaja varieties, to be read as *tt-* for Ketama, *t-* for Bunsar and Zerqet, and *ṭ-* for Taghzut and Hmed. The prefix *t(t)-* may become pharyngealized as a result of pharyngealization spread (cf. Section 2.1.3). When followed by the consonants *d, d̲,* and *ḍ*, the Imperfective prefix assimilates in most Senhaja varieties, while *ṭ* does not assimilate in Taghzut/Hmed, e.g. *duwwaḫ* /e/ (pan-Senhaja) 'to make dizzy', Imperfective *dduwwaḫ /a/* (most varieties), *ṭduwwaḫ* /a/ (T/H).

The Imperfective prefix of the verb 'to do' is realized as voiced in some varieties (Ketama, optionally in Bunsar/Zerqet): *ww* > IPF *degg* (K), *eḡḡ* > IPF *degg* ~ *tegg* (B/Z).[331] The prefix is not voiced in Hmed: *yy* > *ṭegg*.

The prefix may be combined with other changes (Section 4.5.4), such as vowel insertion, replacement, or addition. This Section treats the cases where the prefix *t(t)-* is used on its own, without other modifications.

1) V-initial verbs

Prefix *t(t)-* is the usual way to form Imperfectives of vowel-initial verbs.

***a*-initial verbs**

All *a*-initial verbs (ca. 50 examples in our database) form Imperfectives by the prefix *t(t)-*. For example:

AOR	IPF	Transl.	Variety	AOR	IPF	Transl.	Variety
agem	t(t)agem	draw water	K/B/Z	af	taf	find	H/B/Z
aḵer	t(t)aḵer	steal	K/H	ari	t(t)ari	write	pan-Snh.
aweḏ	taweḏ	arrive	H/B/Z	asi	t(t)asi	lift, carry	pan-Snh.
aẓum	t(t)aẓum	fast	K/S/B/Z	aru	t(t)aru	give birth	pan-Snh.

In Ketama, verbs of the type *aC* have *i/a* alternation in the Imperfective (cf. Section 4.5.5.1): *-i* appears in 1S and 2S, and *-a* in the rest of the paradigm. In Hmed, Bunsar, and Zerqet, there is usually no vowel alternation. The Imperfective is formed either by means of the prefix *t-* alone, or by combining the prefix *t-* with the insertion of the final *-ay* (cf. Section 4.5.4.2). Compare the following Imperfectives in Ketama vs. Hmed/Bunsar/Zerqet:

AOR	IPF (Ketama)	IPF (H/B/Z)	Translation
af	tafi/tafa	taf ~tafay	find
až (ağğ)	ttaži/ttaža	taž (tağğ) ~tažay	leave

***u*-initial verbs**

Verbs starting in *u-* likewise form Imperfectives by the prefix *t(t)-*.

[331] The same feature is found in some other Berber varieties, e.g. Ghomara (Mourigh 2015) and parts of Figuig (Kossmann 1997:143).

AOR	IPF	Transl.	Variety	AOR	IPF	Transl.	Variety
uff	tuff	swell	Z	usu	tusu	cough	S/H
ugg^{w}	tugg^{w}	knead	Z	uggi	tuggi	not to want	Z

The following verbs are *u*-initial in Hmed (corresponding to *a-* in other varieties). Verbs of the type *uCi, uC:i* also change of the final *-i* to *-ay* (cf. Section 4.5.4.2):

AOR	IPF	Translation	Variety/Notes
uẓum	ṭuẓum	fast	H, cf. *aẓum* elsewhere
uḥi	ṭuḥay	be tired	H, cf. Z *aḥel*
uġ̇ġ̇i	ṭuġ̇ġ̇ay	be stuck	H, cf. Z (AOR) *aġ̇el*, K *aġ̇ġ̇i*

***i*-initial verbs**

There are three *i*-initial verbs in our database (*iCi* type). Two of them (the verbs *iẓi* 'fight' and *ili* 'be') form Imperfective by the prefix *t(t)-*. The verb *ini* 'to say' has a suppletive Imperfective (cf. Section 4.5.5.3).[332]

AOR	IPF	Translation	Variety/Notes
iẓi	tiẓi	fight	H/Z
ili	tili	be	Z (K *yy(i) – tiyyi~tiyyi/tiyya*)

2) C-initial verbs

Prefix *t(t)-* without other modifications can also be used to form Imperfectives of some (types of) consonant-initial verbs.

C:

Some verbs that consist of a single geminate form Imperfective with the prefix *t-*:

AOR	IPF	Translation	Variety/Notes
kk	tekk	give	H/B/Z
ḡḡ	tegg	do, make	Z (also *degg*, cf. K *ww – degg*, H *yy – ṭegg*)

[332] The verbs *ili* 'to be' and *ini* 'to say' are *i*-initial only in (parts of) Zerqet, corresponding to a single geminate elsewhere (including some dialects of Zerqet). Notes on dialectal variation are provided in the table.

C:C

Most verbs of the *C:C* type form Imperfective with the prefix. In the following table, examples are pan-Senhaja; examples in group *a* have no vowel alternation in the Aorist, while examples in group *b* have schwa in the Aorist in most Senhaja varieties (including Ketama in forms with suffixes), and *u* in Ketama in forms without suffixes (cf. Section 4.2.1.1).

AOR *(a)*	**IPF**	**Transl.**	**AOR *(b)***	**IPF**	**Transl.**
qqen	t(t)eqqen	tie	ffaġ /e/	t(t)effaġ /e/	go out
qqes	t(t)eqqes	hurt	kker	t(t)ekker	get up
ṭṭeṣ	t(t)eṭṭeṣ	sleep	kkes	t(t)ekkes	remove

C:V and C(:)Cu

Some verbs of the *C:V* (*C:i* and *C:u*) type form Imperfectives with the prefix:[333]

AOR	**IPF**	**Transl.**	**Variety**	**AOR**	**IPF**	**Transl.**	**Variety**
žži	t(t)ežži	heal	K/Z	ttu	t(t)ettu	forget	K/Z (H *ṭṭu – ṭeṭṭu*)
mmi	ttemmi	show	K	zzu	tezzu	plant	H/Z (K IPF *tezzi/a*)

Compare also the following verb of the *C(:)Cu* type (vs. Ketama *ttru* AOR = IPF):[334]

AOR	**IPF**	**Variety**	**AOR**	**IPF**	**Variety**	**Transl.**
ṭru	ṭeṭru	H	ttru	tettru	B/Z	cry

CCVC and C:VC

Some verbs of the type *CCVC* (*CCaC* and *CCuC*) form Imperfective with the prefix.[335] Some of these verbs also have an Imperfective variant with the final *-ay* in Hmed (cf. Section 4.5.4.2). In Zerqet, very often, only the variants with the final *-ay* are found.

AOR	**IPF**	**Translation**	**Variety/Notes**
ɛmaṛ	t(t)eɛmaṛ	be full	K/H (H ~ IPF *ṭeɛmaṛay*)
ɛšaṛ	t(t)eɛšaṛ	be pregnant	K/H (H ~ IPF *ṭeɛšaṛay*)
ḥtaž	t(t)eḥtaž	need	K/H (H ~ IPF *ṭeḥtažay*)
mġuṛ	t(t)emġuṛ	grow	K/H/Z (H/Z ~ IPF *temġuṛay*)

[333] On *i/a* alternation in Ketama Imperfectives, see Section 4.5.5.1.

[334] In this verb, the original Imperfective has been reinterpreted as the Aorist, cf. Section 4.5.5.3.

[335] This type is characteristic of verbs describing qualities and states, cf. Section 3.3.7.6.

Compare also this C:VC verb in Hmed:

AOR	IPF	Translation	Alternative IPF
ğğun	ṭeğğun	be full	H (~ IPF *ṭeğğunay*)

4.5.4. Prefix *t(t)-* Combined with Vocalic Changes

The majority of C-initial verbs that form Imperfective by means of the prefix *t(t)-*, combine the prefix with vocalic changes. Vocalic changes can be divided into the following categories:

1) insertion of a vowel before the final consonant;
2) replacement of the final vowel with *-ay* (or *-i/a*);
3) addition of the final *-i/a* ~ *-a(y)*, rarely *-i, -u*;
4) insertion/replacement of the middle vowel and addition of the final vowel.

4.5.4.1. Prefix *t-* and Vowel Insertion before the Final Consonant

CC:C > tCC:aC

Verbs of the type *CC:C* (including stem II causatives) form Imperfective by the prefix *t-* combined with the insertion of the vowel *a* before the final consonant. Verbs of this type are very frequent in Senhaja (following verbs of *CCC* type). While verbs of *CCC* type can form Imperfectives by different means, for *CC:C* verbs, there is no such variation.[336] The scheme *CC:C > tCC:aC* is found throughout Senhaja. The following examples are pan-Senhaja.

AOR	IPF	Transl.	AOR	IPF	Transl.
ɛemmeṛ	tɛemmaṛ	fill	ṣenneṭ	tṣennaṭ	listen
ḫeḷḷeṣ	tḫeḷḷaṣ	pay	settef	tsettaf	organize
qeššeṛ	tqeššaṛ	peel	siyyes	tsiyyas	persuade
qeṣṣeṛ	tqeṣṣaṛ	make short	wessaɛ /e/	twessaɛ /a/	make wide
beɛɛeḏ	tbeɛɛaḏ	distance	weğğeḏ	tweğğaḏ	prepare
riyyeb	triyyab	destroy	seḫḫen	tseḫḫan	make hot

[336] In Ghomara, some verbs of CC:C type form Imperfective by means of the prefix *t(t)-* alone (Mourigh 2015: 172). This has not been found in Senhaja.

CC:C verbs with the underlying schwa

When the verb ends in a back consonant, the preceding schwa is realized as *a* (cf. Section 2.2.3.1). Thus, based on the surface forms alone, the Imperfective appears to be formed by the prefix *t(t-)* alone. However, when comparing forms with suffixes (e.g. 3P), is it clear that *a* in the Imperfective is underlyingly *a*, while *a* in the Aorist is underlyingly *e*. For example, the verb *lessaq* /lesseq/ 'to stick' in the 3P Aorist is *a lessq-en* 'they will stick', vs. Imperfective *tlessaq-en* 'they stick'. Some examples belonging to this category include (pan-Snh.):

AOR /e/	**IPF /a/**	**Transl.**	**AOR /e/**	**IPF /a/**	**Transl.**
lessaq	tlessaq	stick (trans.)	šeğğaɛ	tšeğğaɛ	encourage
qeṣṣaḥ	tqeṣṣaḥ	make hard	wessaɛ	twessaɛ	widen

CCC > tCCaC

Some triradical verbs can form Imperfectives with the prefix *t-* and insertion of *a* before the final consonant. This is especially frequent in Ketama, but is sometimes found in other Senhaja dialects (including Hmed and Zerqet). As mentioned above, verbs of this type can also form Imperfectives by geminating C2 (throughout Senhaja), or by applying the *C(:)CuC* scheme (in Central and Eastern Senhaja). Thus, *CCC* verbs have three ways to form Imperfectives, with two different manners co-existing within the same variety (*CCC > CC:C* and *CCC > tCCaC* in Ketama, and *CCC > CC:C* and *CCC > C:CuC* in Zerqet). While many verbs have alternative Imperfective forms used interchangeably by the speakers, some verbs allow for only one Imperfective within the same dialect. The following table lists *CCC > tCCaC* examples for the Ketama variety. Alternative Imperfectives of the type CC:C are also listed.

***CCC > tteCCaC* (and *CC:C*) Imperfectives in Ketama**

AOR	**IPF (*tCCaC*)**	**IPF (*CC:C*)**	**Transl.**	**AOR**	**IPF (*tCCaC*)**	**IPF (*CC:C*)**	**Transl.**
ɛzel	tteɛzal	ɛezzel	separate	ġmez	tteġmaz	ġemmez	wink
dres	ttedras	---	thresh	ḵmez	tteḵmaz	ḵemmez	scratch
ḥlef	ttḥlaf	ḥellef	swear	qṣem	tteqṣam	qeṣṣem	share
hlek	ttehlak	hellek	destroy	rḏem	tterḏam	reddem	demolish
hyeḵ	ttehyaḵ	helleḵ	be sick	sken	tteskan	sekken	inhabit

CCC (with the underlying schwa in the AOR) > tCCaC

The following verbs have an underlying schwa in the Aorist (realized as /a/ before a back consonant), that corresponds to the underlying *a* in the Imperfective (Ketama):

AOR /e/	**IPF /a/ (*tCCaC*)**	**IPF /e/ (*CC:C*)**	**Transl.**	**AOR /e/**	**IPF /a/ (*tCCaC*)**	**IPF /e/ (*CC:C*)**	**Transl.**
flaq	tteflaq	fellaq	split	slaḫ	tteslaḫ	sellaḫ	skin
ḥraq	tteḥraq	---	burn	wsaɛ	ttewsaɛ	wessaɛ	be wide
qṭaɛ	tteqṭaɛ	qeṭṭaɛ	cut	žmaɛ	ttežmaɛ	žemmaɛ	gather
sbaġ	ttesbaġ	sebbaġ	paint	ẓṛaɛ	tteẓraɛ	ẓerreɛ	sow

CCC > tCCaC Imperfectives outside Ketama

The following table lists *CCC > tCCaC* examples outside Ketama. This way of forming Imperfective is not common in these varieties. Alternative Imperfectives are provided.

AOR	**IPF**	**Translation**	**Variety**	**Alternative IPF**
bdeḏ	ṭebdaḏ	stop	H	ṭebdaḏay
ḫzer	teḫzar	look	Z	ḫeddzer
fhem	tefham	understand	Z	fehhem, ffhum

CCCC > tCCCVC

Quadriliteral verbs form Imperfectives by the prefix *t-* combined with the insertion of a vowel before the final consonant.[337] This vowel is often *a*, but not always. There are dialectal differences as to which vowel is inserted (in a given verb).

CCCC > tCCCaC

The following verbs insert the vowel *a* before the final consonant.

AOR	**IPF**	**Transl.**	**Variety**	**AOR**	**IPF**	**Transl.**	**Variety**
beḷbeḷ	tbeḷbaḷ	bleat	K/H	ɛerkel	tɛerkal	prevent	H
beṛbeṛ	tbeṛbaṛ	scream	K	ġerbel	tġerbal	sieve	K/H/Z
qefqef	tqefqaf	shiver	K/H/Z	qerqeb	tqerqab	knock	K/H/Z
qeṛqeṛ	tqeṛqaṛ	croak	H/Z	serweṭ	tserwaṭ	thresh	H/Z

[337] Many of the verbs in this group are reduplicated stems, often onomatopoeic.

The quadriliteral verb *pinčer* also includes a vowel (CiCCC). It is a loan from Spanish *pinchar* 'to puncture'. It forms Imperfective by the prefix *t-* and insertion of *a* before the final consonant: *pinčer* > *tpinčaṛ* 'puncture' (H/Z, in Z also IPF *tpinčir*).

CCCC* > *tCCCiC

The following verbs insert the vowel *i* before the final consonant.

AOR	**IPF**	**Transl.**	**Variety**	**AOR**	**IPF**	**Transl.**	**Variety**
bežbež	tbežbiž	be flooded	K/H/Z	herher	therhir	tickle	K/H
deḇdeḇ	tdeḇdiḇ	buzz	H/Z	ḥesḥes	tḥesḥis	whisper	K/H
bezbez	tbezbiz	buzz	K	keškeš	tkeškiš	scare	K/H
weṛweṛ	ṭweṛwiṛ	be full with	H	feṭfeṭ	tfeṭfiṭ	shake	K/H/Z

CCCC* > *tCCCuC

Finally, a few verbs of the type CCCC insert *u* before the final consonant.

AOR	**IPF**	**Transl.**	**Variety**	**AOR**	**IPF**	**Transl.**	**Variety**
heṛheṛ	theṛhuṛ	roar	K/Z	qeṛqeṛ	tqeṛquṛ	croak	K
teftef	tteftuf	feel, search	K/Z	bezbez	tbezbuz	buzz	K

CVCC > tCVCVC

Verbs of the *CVCC* type often form the Imperfective with the *t(t)-* prefix combined with a vowel insertion before the final consonant. The inserted vowel can be an invariable *a* or can be copied from the verb root. The general scheme is thus *CVCC*> *tCVCVC*, with the following possible sub-categories: *CaCC*> *tCaCaC*, *CiCC* > *tCiCaC* (invariable *a*), *CiCC* > *tCiCiC* (vowel *i* copied from the base), *CuCC*> *tCuCaC* (invariable *a*), and *CuCC*> *tCuCuC*. Consider the following examples.

CaCC*> *tCaCaC

AOR	**IPF**	**Transl.**	**Variety**	**AOR**	**IPF**	**Transl.**	**Variety**
sayes	tsayas	persuade	K/H	ḥawel	tḥawal	try	K/H/Z
ɛaṛeḏ	tɛaṛaḏ	invite	K/H/Z	ḫaṭer	tḫaṭar	risk	K/H/Z

CiCC*> *tCiCaC* and *CiCC*> *tCiCiC

The following verb has two alternative Imperfectives in Zerqet, and one in Hmed:

AOR	**IPF (H/Z)**	**IPF (Z)**	**Transl.**
sisen	tsisan	tsisin	dip (smth. into smth.)

CuCC **>** ***tCuCaC*** **and** ***CuCC*** **>** ***CuCuC***

The verb *susef* 'to spit' has different Imperfectives in different varieties. In Hmed and Zerqet, the Imperfective is formed by the prefix *t-* and the vowel insertion (*a* in Hmed, *u* in Zerqet). In Ketama, there is no prefix *t-* in the Imperfective, as in many *s*-initial verbs (cf. Section 4.5.6), and the inserted vowel is *u*:

AOR	IPF (H)	IPF (Z)	IPF (K)	Translation
susef	ṭsusaf	tsusuf	susuf	spit

4.5.4.2. Prefix *t-* and Replacement of the Final Vowel with *-ay* or *-i/a*

a) Prefix *t-* and replacement of the final *-i(~-a)* with *-ay*

Some *i*-final verbs form Imperfectives by the prefix combined with a change of the final *-i* into *-ay*.[338] This group also includes verbs that have *i/a* alternation in the Aorist in Zerqet, usually corresponding to the invariable *-i* in other Senhaja varieties (Ketama, Taghzut, Seddat, Hmed), cf. Section 4.2.1.3. This type of Imperfective is distinct from other Imperfectives on *-ay* formed on the basis of C-final verbs (cf. below, Section 4.5.4.3). While *i*-final verbs can acquire the final *-ay* in the Imperfective across Senhaja, *ay*-final Imperfectives of C-final verbs are absent in Ketama.

Not all *i*-final verbs replace *-i* with *-ay* in the Imperfective. Some verbs form the Imperfective by gemination of the second consonant (cf. Section 4.5.1), and others by changing the final *-i* to *-uy*, combined with the gemination of C1 (audible in Zerqet, not audible in Hmed), cf. Section 4.5.2.[339] As usual, alternative Imperfective forms may co-exist in the same dialect. We will first look at verbs of the type *CC:i*, *CaCi*, and *CCaCi*, followed by other types. Many verbs of the *CC:i* and *CaCi* types are borrowed from Arabic.

CC:i > tCC:ay

Below follow some examples of *CC:i* verbs (with an invariable *-i*) that form Imperfectives with the prefix *t-* combined with a change of the final *-i* to *-ay*. Examples include stem II causatives of *CC:i* type.

[338] It could have been also said that the vowel *a* is inserted before the final *-i*, which becomes realized as *y* after *a*.

[339] In our analysis, the last type of Imperfective is formed by inserting the vowel *u* before the final *-i*, which becomes realized as *-y* following *u*. This type of Imperfective recalls the *C(:)CuC* type (cf. Section 4.5.2), with the difference that *C:CuC* is formed on the basis of C-final verbs, and *CC(:)uy* on the basis of *i*-final verbs.

AOR	IPF	Transl.	Variety	AOR	IPF	Transl.	Variety
ġeṭṭi	tġeṭṭay	cover	K/H/Z	siyyi	tsiyyay	test, try	K/H
meḏḏi	tmeḏḏay	sharpen	K/H/Z	ṣeffi	tṣeffay	sieve	K/H/Z
neqqi	tneqqay	clean	K/H/Z	werri	twerray	show	K/H
ḥemmi	tḥemmay	make hot	K	bekki	tbekkay	make cry	K/T/H

CC:i/CC:a > tCC:ay

The following verbs have *i/a* alternation in the Aorist in Zerqet, corresponding to the invariable *-i* in most other varieties (cf. Section 4.2.1.3). The Imperfective is common across Senhaja.

AOR (K/H)	AOR (Z)	IPF (K/H/Z)	Transl.	AOR (K/H)	AOR (Z)	IPF (K/H/Z)	Transl.
ɛelli	ɛelli/a	tɛellay	ascend	ṛebbi	ṛebbi/a	tṛebbay	raise
luwwi	luwwi/a	tluwway	roll	semmi	semmi/a	tsemmay	name
ġenni	ġenni/a	tġennay	sing	tekki	tekki/a	ttekkay	nap
lehhi	lehhi/a	tlehhay	distract	ẓemmi	ẓemmi/a	tẓemmay	wring

In the following examples of the type *tCC:i* (*t*-derived verbs in Arabic), Ketama and Zerqet both have *i/a* in the Aorist. As verbs are *t*-initial, the addition of the prefix *t-* is not audible in Ketama and Zerqet, while in Hmed, *ṭ-* does not assimilate to the following *t*:

AOR (K/Z)	AOR (H)	IPF (K/H/Z)	IPF (H)	Translation
tɛeššiː/a	tɛeššiː	tɛeššay	ṭetɛeššay	have dinner
tġeddi/a	tġeddi	tġedday	ṭetġedday	have lunch
tweḍḍi/a	tweḍḍi	tweḍḍay	ṭetweḍḍay	perform ablution

C(C)aCi/a > tC(C)aCay

All examples in the *C(C)aCi* type in our database have *i/a* alternation in the Aorist in Zerqet, corresponding to *-i* in Ketama/Hmed. The Imperfective is common.

AOR (K/H)	AOR (Z)	IPF (K/Z)	IPF (H)	Translation
laqi	laqi/a	tlaqay	ṭlaqay	meet
ḥaḏi	ḥaḏi/a	tḥaḏay	ṭḥaḏay	touch
glaṣi	glaṣi/a	t(t)eglaṣay	ṭeglaṣay	freeze smth.
ḫtafi	ḫtafi/a	t(t)eḫtafay	ṭeḫtafay	disappear

The verb *sawi* ‘speak’ is of *CaCi* type in Bunsar variety, and forms Imperfective in the same way: IPF *tsaway*.

Varia

Other verbs ending in *-i* form Imperfective in the same way, for example:

AOR	IPF	Transl.	Variety	AOR	IPF	Transl.	Variety
žži	t(t)ežžay	heal	K/Z	mġi	t(t)emġay	grow (of plants)	K/H/Z
ṛwi	tteṛway	be soaked	K	menti	tmentay	lie	K

The verb *ṭṭwi* ‘to fold’ also belongs to this category, although the prefix is invisible since the verb starts in *ṭṭ*: IPF *ṭṭway* ‘fold’ (K/Z).

The Hmed verb *uġġi* ‘to be stuck’ forms Imperfective by the prefix *t-* and the change of the final *-i* to *-ay*: *ṭuġġay*.[340]

The verb *tesli/a* ‘to hear’ in Zerqet has *i/a* alternation. The Aorist form is the reinterpreted Imperfective.[341] The current Imperfective in Zerqet replaces the final *-i/a* with *-ay*: *teslay*.

The verb *seqsi* (K/H), Z *seqsi/a* ‘to ask’ shows variation in the presence of the prefix *t-* (cf. Imperfectives of *s*-derived causatives, Section 4.5.6). The final *-i* corresponds to *-ay* in the Imperfective across Senhaja: K *seqsay*, H *(ṭ)seqsay*, Z *tseqsay*.

b) Prefix *t-* and replacement of the final *-a* with *-ay*

There are very few *a*-final verbs in Senhaja.[342] However, the few examples that are there, form Imperfectives as *i*-final verbs, i.e. by the prefix *t-* and the change of the final *a-* to *-ay* (that is, *-y* is added after the final *-a* that is already present):

AOR	IPF	Translation	Variety
ḥfa	t(t)eḥfay	be dull	K/H/Z
tawa	ttaway	resemble	Z-Wersan[343]
uɛla	tuɛlay	become taller	Z-Wersan

[340] Cf. Ketama *aġi*, Imperfective *ttaġi* or *ttaġay* (free variation), and Zerqet *aġel*, Imperfective *taġel*.

[341] In other Senhaja varieties, the Imperfective has also been generalized. Cf. Ketama/Taghzut/Hmed *sell*, IPF *tselli/a* (K), *ṭselli/a* (T), *ṭsellay* (H); Seddat/Bunsar *tsyay* (AOR = IPF).

[342] Excluding *i/a* alternating verbs in Zerqet. Some passives and causatives are *a*-final.

[343] In other dialects, the verb *awi* ‘to take’ (IPF *t(t)awi*) is used in this meaning.

c) Prefix *t-* and replacement of the final *-u* with *-ay*~*-aw*

Some *u*-final verbs form the Imperfective with the prefix *t-* combined with the replacement of the final *-u* by *-ay* or *-aw*.[344] For example:

AOR	IPF	Transl.	Variety	AOR	IPF	Transl.	Variety
ḥfu	tteḥfay	be dull	K	ḥlu	tteḥlaw	be sweet	K
ḥmu	tteḥmay	be hot	K	ḥlu	teḥlay	be sweet	H/Z

Sometimes, additional changes take place, e.g.

AOR	IPF	Translation	Variety/Notes
ḥlu	teḥliway	be sweet	Z (~IPF *teḥlay*)

In Ketama the final *-u* can correspond to the *i/a* alternation (in combination with the prefix *t-*), e.g.

AOR	IPF	Translation	Variety
ẓẓu	teẓẓi/a	plant	K (Z/H IPF *teẓẓu*)

Some causatives and passives are *u*-final, and form Imperfectives by replacing the final *-u* with *-ay*, e.g.[345]

AOR	IPF	Translation	Variety
nnebnu	tennebnay	be built	K/H (also AOR *nnebna*)
tternu	ṭetternay	be added	H
ssebḏu	ṭssebḏay	make start	H

Some *u*-final derived verbs (causatives and passives) have the Imperfective on *-aw* (sometimes in free variation with *-ay* or *-u*), e.g.

AOR	IPF	Translation	Variety/Notes
sseḥmu	ṭesseḥmay ~ (ṭ)sseḥmaw	make hot	H (Z IPF *sseḥmaw*)
ttessu	ṭetssaw~ṭetssu	be spread	H
ttettu	ttettaw	be forgotten	K (H *tteṭṭu*, IPF *ṭetteṭṭaw*~*ṭetteṭṭu*)
tteẓẓu	tteẓẓaw~tteẓẓu	be planted	K (H IPF *ṭetteẓẓaw*~ *ṭetteẓẓu*)

[344] More commonly, verbs ending in *-u* form Imperfectives be geminating C2 or by replacing the final *u* with *uy*.

[345] In *s*-derived causatives, the prefix *t-* is absent in most Senhaja varieties, but normally present in Hmed.

4.5.4.3. Prefix *t-* and Addition of the Final *-i/a ~ ay* or *-u*

Some C-final verbs form Imperfective by the prefix *t-* combined with the addition of the final *-i/a* (Ketama) or *-ay* (Hmed/Bunsar/Zerqet).

CVC verbs

AOR	IPF (K)	IPF (H/Z)	Transl.	AOR	IPF (K)	IPF (H/Z)	Transl.
ɛiš	tɛiši/a	tɛišay	live	**ẓuṛ**	tẓuṛi/a	tẓuṛay	visit
ṣuḏ	tṣuḏi/a	tṣuḏay	blow	**ɛum**	tɛumi/a	tɛumay	swim

CC: verbs

AOR	IPF (K)	IPF (H/Z)	Translation
fekk	tfekki/a	tfekkay	untie
hezz	thezzi/a	thezzay	shake

C:VC(:) verbs

The initial long consonant is sometimes degeminated following the prefix (cf. Section 4.5.4.5). Sometimes, additional changes take place (e.g. in *ğğun* 'be hungry' and *mmuṭ* 'die').

AOR	IPF (K)	IPF (H)	IPF (Z)	Transl.
ḷḷuẓ (K/H) ğğuẓ (Z)	tḷuẓi/a~tḷaẓi/a	ṭeḷḷuẓay~ṭeḷḷaẓay	tğaẓay	be hungry
ğğun	(tteğğun~tğawan)	ṭeğğun(ay)	tğwanay	be full
qquṛ	tġaṛi/tġaṛa (~teqqaṛ)	---	tquṛay	be dry
mmuṭ	(tmettaṭ~ttemmuṭ)	ṭemmuṭay~ṭmeṭṭaṭ	tmuṭay	die
qqim	tqimi/tqima	ṭġimay~ṭqqimay	tġimay	sit, stay

Compare the following verbs of the *C:VC:* type.

AOR	IPF	Transl.	Variety/Notes
kkubb	tkubbi/a	pour	K, ~ IPF *tkubbu*, H/Z *kkebb*, IPF *tkebbay*
ggall	tgalli/a (K), ṭeggallay (H)	swear	Z *ggažž*, IPF tgažžay

Varia

The following verbs of various types form Imperfectives with the prefix *t-* and the final *-ay*. The verb *wareg* 'to dream' has Imperfective on *-ay* also in Ketama.

Type	AOR	IPF	Translation	Variety/Notes
C(a)C:	daqq	ṭdaqqay	knock	H
C(:)C:	k(k)ebb	tk(k)ebbay	pour	H/Z
C:C	ṛṛeẓ	ṭeṛ(ṛ)ẓay	be broken	H (Z IPF *ṭruẓay*)
C:C	mmeṭ	tem(m)tay	die	Z
CCC	bedd	tbedday	stop	Z
CaCC	wareg	ttwargay	dream	K/H/Z

CCVC

The following verbs are of the *CCVC* type. In Ketama, the Imperfective is formed by the prefix *tt-* alone, while in Hmed/Zerqet, the prefix is combined with the final *-ay*. The final *-ay* is optional in Hmed in all these forms, and also optional in Zerqet in the last example (verb *mġuṛ*).

AOR	IPF (K)	IPF (H/Z)	Transl.	AOR	IPF (K)	IPF (H/Z)	Transl.
ḫṭaṛ	tteḫṭaṛ	teḫṭaṛay	choose	**ɛšaṛ**	tteɛšaṛ	teɛšaṛay	be pregnant
ḥtaž	tteḥtaž	teḥtažay	need	**mġuṛ**	ttemġuṛ	temġuṛ(ay)	grow

Prefix *t-* and addition of the final *-u*

Exceptionally, the following verb forms the Imperfective by the prefix *t-* combined with the addition of the final *-u*:

AOR	IPF	Translation	Variety
kkubb	tkubbu	pour	K (~IPF *tkubbi/tkubba*)

Insertion of the final *-u* is also encountered in the Imperfectives of some causatives (cf. Section 4.5.6).

4.5.4.4. Prefix *t-*, Vowel Insertion/Change, Addition of the Final *-a(y)*

Some verbs (especially CC or C:C type) form Imperfectives by the prefix *t-* and the addition of the final *-i/a* (Ketama) ~*-ay* (Hmed/Zerqet) combined with the vowel insertion before the final consonant. The inserted vowel can differ per dialect:

Type	AOR	IPF (K)	IPF (H/Z)	Translation
CC	res	trusi/trusa	ṭrusay (H)	land
C:C	ṛṛeẓ	tṛaẓi/tṛaẓa	tṛuẓay (Z)	be broken

In the following CCC verbs, the Imperfective is formed in the same way in H/Z (prefix *t-* combined with the inserted vowel and the addition of the final *-ay*), while there is no insertion of the final *-i/a* in Ketama (where the Imperfective is formed by the prefix *t-* and insertion of *a* before the final consonant). As mentioned above, in Hmed, the final *-ay* is often optional.

AOR	**IPF (K)**	**IPF (H/Z)**	**Transl.**	**AOR**	**IPF (K)**	**IPF (Z)**	**Transl.**
bdeḏ	ttebḏaḏ	ṭebdaḏay (H)	stop	ɛmaṛ	tteɛmaṛ	teɛmiṛay	be full
ṣɛeb	tteṣɛab	tṣɛibay	be difficult	ḫnez	tteḫnaz	tteḫnizay	stink

Some verbs change the medial vowel (in addition to the prefix *t-* and the insertion of the final *-i/a* ~ *-ay*) in the Imperfective:

AOR	**IPF (K)**	**IPF (H/Z)**	**Translation**	**Notes**
ḷḷuẓ	tḷaẓi/tḷaẓa	ṭeḷḷaẓay (H)	be hungry	Z *ǧǧuẓ*, IPF *teǧǧaẓay*

Usually, it is the causatives that form Imperfectives by means of the vowel change (cf. Section 3.3.2 on causatives and Section 4.5.6 on their Imperfectives).

4.5.4.5. A Note on Degemination of C1

The Imperfective prefix *t-* usually degeminates the initial consonant in Ketama and Zerqet, while degemination usually does not take place in Hmed. Consider the following examples.

AOR	**IPF (K)**	**IPF (Z)**	**IPF (H)**	**Transl.**
ṛṛeẓ	tṛaẓi/a	tṛuẓay	ṭeṛ(ṛ)ẓay	be broken
qqim	tqimi/a	tġimay	ṭġimay~ṭqqimay	sit
ggall (K/H), ggažž (Z)	tgalli/a	tgažžay	ṭeggallay	swear
ẓẓaḷḷ (K/H), ẓẓaž (Z)	tẓaḷḷi/a	tẓažay	ṭeẓẓaḷḷay	pray
qquṛ	tġaṛi/a	tquṛay	---	be dry
ḷḷuẓ (K), ǧǧuẓ (Z)	tḷaẓi/a	teǧǧaẓay	ṭeḷḷuẓay	be hungry

4.5.5. Special Cases and Irregular Imperfectives

Alternation in the Imperfectives is found in Ketama (Section 4.5.5.1). Some Imperfectives are formed in an irregular way. Special cases discussed in Section 4.5.5.2 include: *kk* 'to give', *ww* (K)/*yy* (H)/ *ḡḡ* (Z) 'to do', *wm* (K)/*mm* (T)/*ww* (H/Z)

'to be ripe, to cook', *sw* (most Snh.)/ *sḇ* (H) 'to drink' and its causative *ssw* (most Snh.)/ *sseḇ* (H) 'to cause to drink; to irrigate', and a few other cases. There may be irregular vowels or consonants. Irregular changes may co-occur with the prefix *t-*. Suppletion is also discussed in this section.

4.5.5.1. Alternation in the Imperfective (Ketama)

Alternating Imperfectives have been found in Ketama. Some Imperfectives have alternation between Ø and *-a* in 2P and 3P forms, e.g.

(17) *su /sew/* 'drink', IPF *ss/ssa*: 3MS *i-ses* 'he drinks', 3P *ssa-n* 'they drink';

(18) *kk* 'give', IPF *tak* ~ *taka*: 3MS *i-tak* 'he gives', 3P *taka-n* 'they give' (dialectal).

Some verbs have *-i/a* alternation in the Imperfective (cf. Section 4.2.1.3 on the *-i/a* alternation in the Aorist and Section 4.3.1.3 on the *-i/a* alternation in the Perfective). While *-i/a* alternation in the Aorist is characteristic of Zerqet, *-i/a* alternation in the Imperfective is characteristic of Ketama (often corresponding to the final *-ay* in Hmed/Zerqet).[346] Verbs of different schemes can have *-i/a* alternation in the Imperfective. The alternation is always accompanied by the Imperfective prefix *t-* (except for causatives). Consider the following examples.

Imperfective *i/a* alternation in Ketama

Type	**AOR**	**IPF (K)**	**Translation**	**Notes**
aC	af	ttafi/a	find	T/H/B/Z IPF *taf*
aC(:)	až (ağğ)	ttaži/a	leave	T/H/Z IPF *taž (tağğ)*
aCi	ari	ttari/a	write	T/H/B/Z IPF *tari*
C:	yy	tiyyi/a	be	Z IPF *tili*
C:V	ẓẓu	teẓẓi/a	plant	=T; vs. H/Z IPF *teẓẓu*
CC	res	trusi/a	dress	H *les*, IPF *less* ~ *ṭlusay*
CC:	sell	tselli/a	hear	=T; vs. H IPF *ṭsellay*
CVC	fiq	tfiqi/a	wake up	=T; vs. H IPF *ṭfiqay*
CVC:	kkubb	tkubbi/a	pour	H *kebb*, IPF *ṭkebbay*
C:VC:	ggall	tgalli/a	swear	H IPF *ṭeggullay*
CCV	rru	terri/a	add	=T; vs. H IPF *rennu*

[346] Imperfective *-i/a* alternation is also occasionally found in Taghzut, but not as frequently as in Ketama.

The following *s*-initial verbs are historically causatives.[347] One of them forms Imperfective with the prefix *t-*, while in the other one, the prefix is absent (as is usual in causatives):

AOR	IPF	Translation	Notes
sawi	sawi/a	speak	H *siwi*, IPF *(ṭ)saway*
suff	tsuffi/a	inflate	H *suf*, IPF *ṭsufay*

4.5.5.2. Imperfectives in Specific Verbs

1) The verb 'to give'

The verb 'to give' is *kk* (< **fk*), with the Perfective *kki/a* across Senhaja. In Seddat, Hmed, and Bunsar, the Imperfective of this verb is regular (formed by the prefix *t-*). In Ketama and Taghzut, the Imperfective of this verb inserts the vowel *a* before the stem of the verb, combined with the addition of the final *-i/a* in Ketama. The Beni Aisi dialect of Ketama either has the *-i/a* alternation (as the rest of Ketama), or a *Ø/a* alternation, where *-a* is found in 2P and 3P. Also, in Beni Aisi, the root is degeminated in the Imperfective. In Zerqet, the Imperfective inserts the vowel *i*, and there is also degemination (as in Beni Aisi). Below follows a comparative table.

Imperfective of *kk* 'to give'

Ketama (majority)	Ketama: Beni Aisi	Taghzut	Seddat/ Bunsar	Hmed	Zerqet
takki/a	taki/a~ tak/a	ṭakk	tekk	ṭekk	tik

2) The verb 'to do'

The verb 'to do' has (synchronically) different stems in different Senhaja varieties: Ketama *ww* (PERF *gi/a*), Hmed *(i)yyi* (PERF *(i)yyi/a*, Zerqet *ḡḡ* (PERF *ḡḡi/a*). Besides different realizations due to different phonetic developments, its peculiarity is also the voiced realization of the Imperfective prefix in Ketama and (as a possible option) in Zerqet: Ketama *degg*, Hmed *ṭegg*, Zerqet *degg~tegg*.

[347] The first one, *sawi*, is a denominal causative (cf. Zerqet *siwel*), from the word *awal* 'word' (no longer in use), while the second one, *suff*, has a corresponding base verb *uff* 'to swell' in Zerqet.

3) The verb ‘to be ripe/cooked’

This verb ‘to be ripe’ etymologically has the root *nw’* (’ is [ʔ], the glottal stop), see Kossmann 2008b: 230-231. The assimilation and metathesis led to different current stems of this verb in Senhaja: Ketama *wm* (PERF *wmi/a*), Taghzut *mm* (PERF *mmi/a*), Hmed/Zerqet *ww* (PERF *wwi/a*). In Hmed, in the Imperfective, the initial *n-* is preserved, and the long counterpart of *w* is *gg*^{w} (IPF *negg*^{w}).[348] In Zerqet, the Imperfective has the same root as the Aorist (*ww*), and the stem is derived by adding the IPF prefix *t-* and the final *-ay* (IPF *tuwway* /tewway/). In Ketama and Taghzut, the Imperfective is formed by the prefix *t-*: K *ttumi/a*, T *ṭemmi/a*.

Imperfective of ‘to be ripe/cooked’

Ketama	**Taghzut**	**Hmed**	**Zerqet**
ttumi/a	ṭemmi/a	negg^{w}	tuwway /tewway/

4) The verbs ‘to drink’, ‘to irrigate’, and ‘to prepare a resting place’

The verb *su* /sew/ ‘to drink’, Perfective *swi/a* (most Snh. excluding Hmed) has the Imperfective stems *(se)ss* in Ketama/Zerqet, *ss* in Taghzut, and *segg*^{w} in Seddat. This verb has a morphological causative *ssu* (underlyingly /ssew/ in K/S/Z, underlyingly *ssuw* in T), that became lexicalized in the sense ‘to irrigate’ (Perfective *sswi/a* in Ketama, AOR = PERF in Taghzut/Zerqet, *ssi/a* in Seddat), Imperfective *ssway* or *tesswi/a* (K), *ssuway* (T), *ssway* or *tessu* (S), *tessu* (Z).

Hmed has the Aorist *seḇ* ‘to drink’ (Perfective *sḇi/a*) > Imperfective *(se)ss* (as Ketama and Zerqet); causative *sseḇ* ‘make drink; irrigate’ (AOR = PERF), Imperfective *ṭesseḇ* ~ *ṭesseḇay*.

The verb *ssu* ‘to irrigate’ is homonymous or partially homonymous (depending on the variety) with the verb *ssu* ‘to spread/prepare a resting place’ (underlyingly /ssw/ in K/T/S, /ssu/ or /ssw/ in Zerqet, /ssu/ in Hmed; Perfective *sswi/a* K, *ssi/a* T/S/H/Z), Imperfective *ssway* or *tessi/a* (K), *ṭessi/a* (T), *ssway* or *tessu* (S), *tessu* (Z). The Imperfective forms of these three verbs are compared in the following table.[349]

The following table shows the Imperfective forms of the verb *su* /sew/ (H *seḇ*) ‘to drink’, its causative counterpart *ssu* (H *sseḇ*) ‘to irrigate’, and lists for comparison the Imperfective forms of the verb *ssu* ‘to prepare a resting place’.

[348] In 3MS, the underlying *i-negg*^{w} is realized as *i-nug* (*i-ne*^{w}*gg*): labialization is realized before the velar.
[349] See https://academia.li/gutova/senhaja-three-verbs for the paradigms.

The Imperfective forms of the verbs 'drink', 'irrigate', and 'prepare a resting place'

	Ketama	**Taghzut**	**Seddat**	**Zerqet**	**Hmed**
'drink'	(se)ss	ss	segg^{w}	(se)ss	(se)ss
'irrigate'	ssway~tesswi/a	ssuway	ssway~tessu	tessu	ṭesseḇ(ay)
'prepare a resting place'	ssway~tessi/a	ṭessi/a	ssway~tessu	tessu	ṭessu

4.5.5.3. Varia

Frozen causatives

Causatives may form Imperfectives differently from the regular verbs (cf. Section 4.5.6). Thus, they normally lack the Imperfective prefix *t-*, and they can form Imperfective by a vowel change. Some old causatives are not causatives synchronically. In this case, the Imperfective may appear irregular, e.g.[350]

AOR	**IPF**	**Translation**	**Variety**
siwi	(ṭ)saway	speak	H (cf. Z *ssiwel*, IPF *ssawal*)

Varia

The following verbs have different irregularities in the Imperfective.

Type	**AOR**	**IPF**	**Translation**	**Variety/Notes**
C:C	wweṯ	kk^{w}aṯ	hit	H/B/Z (K/T *kkaṯ*)
C:V	ddu	ttuḏu	walk	K
C:VC	mmuṯ	tem(m)taṯ	die	K/H

Suppletion

Some Imperfectives are suppletive to the Aorist stem.

AOR	**IPF**	**Translation**	**Variety/Notes**
čč	tett	eat	B/Z (K *šš – tett*, T *čč – šečč*, H *čč – seṭṭ*)
bb	ttawi	take	K (Sahel) (elsewhere *awi – t(t)awi*)
ddu	ɛeddu	walk	H
ini, nn	qqaṛ	say	pan-Snh.

[350] The verb 'to speak' is originally derived by means of the prefix *s-* from a noun *awal* 'word'.

Imperfective = Aorist

There are some verbs that do not change in the Imperfective. These are the verbs whose original Imperfective stem became reinterpreted as the Aorist (they all start in *t-*, originally the Imperfective prefix). Later, some Senhaja varieties formed a new Imperfective.

AOR = IPF	**Translation**	**Variety/Notes**
ttru	cry	K (B/Z *ttru*, IPF *tettru*, H *ṭru*, IPF *ṭeṭru*)
ttares	be owed money to	K (H/Z *ares*, IPF *tares*)
tsyay	to hear	B (Z *tsli/tsla*, IPF *tslay*, K *sell*, IPF *tselli/tsella*, H *sell*, IPF *ṭsellay*

Verbs lacking the Imperfective

Some verbs (especially those describing states/quality) may lack the Imperfective form. Such verbs also typically lack the Imperative. For example:

Verb	**Translation**	**Variety/Notes**
ḫšen	be bad, ugly	S (vs. Z IPF *teḫšinay*)
ẓẓi/ẓẓa	be bad, ugly	K
ṣbaḥ /ṣbeḥ/	be good	K/S (vs. H IPF *ṭeṣbaḥay*)
ḥlu	be sweet	T/S, vs. Z IPF *teḥliway*

However, there are dialectal differences. Also, there are verbs with similar semantics that have Imperfectives, e.g.

AOR	**IPF**	**Translation**	**Variety/Notes**
zyan	tezyan	be nice	K/T/S

For the Seddat variety, is difficult to draw a line between such defective verbs (lacking the Imperfective stem) and conjugated adjectives that developed from old stative verbs (cf. Chapter 7). Conjugated adjectives have special morphological marking in most varieties of Senhaja, distinguishing them from defective verbs. However, in Seddat, adjectives are conjugated with the regular affixes, thus turning them into defective verbs.

4.5.6. Imperfective of *s*-derived and *s*-initial Verbs

Most *s*-derived (or *s*-initial) verbs form Imperfectives by vocalic changes, such as the insertion of a vowel (*a,* sometimes *u* or *i*), usually before the final consonant (and sometimes the final vowel) of the verb. Some verbs add *u* (*~w*) or *i (~y)* after the final consonant (or the final vowel). Some verbs add *-ay*. The Imperfective prefix *t(t-)* can co-occur with the causative prefix in Hmed and sometimes in Zerqet (Ikherruden dialect). This must be an innovation by analogy with other imperfective forms.[351]

4.5.6.1. Insertion of *a*

The following verbs insert the vowel *a* before the final phoneme of the verb base (consonant or a vowel). Many CCC verbs are found in this category.

1) Insertion of *a* before the final consonant

AOR	IPF	Transl.	Base	Transl.	Variety
ssehyek̲	ssehyak̲ (K), ṭessehyak̲ (H)	make sick	hyek̲	be sick	K/H[352]
ssek̲šem	ssek̲šam (all), ṭessek̲šam (H)	make enter	k̲šem	enter	pan-Snh.
ssud̲ed̲	ṭessud̲ad̲[353]	nurse (trans.)	ṭṭed̲	nurse (intr.)	H

The following verb has an underlying schwa in the Aorist vs. underlying *a* in the Imperfective:[354]

AOR	IPF	Translation	Base	Translation	Variety
ssufaġ /e/	ssufaġ /a/	make go out	ff(u)ġ	go out	K/B

2) Insertion of *a* before the final vowel

When the verb base ends in *-i* (which can be from the old **el*) or in *-u* and the vowel *a* is inserted in the Imperfective, the final vowel becomes a glide: *i>y*, *u>w*.

[351] Most Berber varieties (including the majority of Senhaja and Ghomara) do not allow the co-occurrence of the causative prefix *s(s)-* and the Imperfective prefix *t(t)-*. Compare Cadi 1987 and Kossmann 2002a.

[352] Cf. Taghzut causative *ssehžek̲*, imperfective *ssehžak̲* < base *hžek̲*, Zerqet causative *ssehlek̲*, imperfective *ssehlak̲* < base *hlek̲*.

[353] Imperfective *ṭssud̲uḍ* is also used (see below).

[354] Other Imperfective forms of this verb are also found, see below.

Alternatively, one could say that final *i* is substituted by *-ay*, and final *-u* by *-aw*. For final *-u* there also exists other patterns.

Final *i* > *-ay*

AOR	IPF	Translation	Base	Translation	Variety
ssani	ṭssanay	make ride	ani	ride	T/H
ssemġi	ssemġay (K/Z), ṭessemġay (H)	make sprout	mġi	sprout	K/H/Z
sawi[355]	saway	speak	---		K

The following *s*-initial verb either follows the above pattern (final *i* > *ay*) or forms its Imperfective by C2 gemination in Ketama. In Hmed, *-i* > *-uy*. The verb has no base counterpart.

AOR	IPF	Translation	Variety
sfi	ttesfay~seffi (K), sfuy (H)	fester	K/H

Final *u* > *-aw*

In the following example, the final *-u* corresponds to *-aw* in the Imperfective:

AOR	IPF	Translation	Base	Translation	Variety
ssetru	ssetraw	make cry	ttru	cry	Z

The verb *sseḥmu* 'make hot' (base *ḥmu* 'be hot') either follows the same pattern (IPF *sseḥmaw* in Taghzut and the Ikherruden dialect of Zerqet), or substitutes the final *-u* with *-ay*: IPF *sseḥmay* in Ketama and parts of Zerqet (Bunjel). In Hmed, the final *-ay* is combined with the prefix *ṭ* (IPF *ṭesseḥmay*). The Imperfective *sseḥmuy* is also found in Ketama.

4.5.6.2. Insertion of *u*

Causatives derived from CC and C:C verbs can form Imperfectives by inserting the vowel *u* before the final consonant of the base. In this case, the Imperfective has the form *C(:)CuC*, recalling the frequent way to form Imperfectives of underived CCC

[355] Cf. Zerqet *siwel* > *sawal.*

verbs in Zerqet. In some verbs, this change is optionally combined with the final *-ay* in Hmed (cf. below).[356]

AOR	IPF	Translation	Base	Transl.	Variety
ssens~snes	snus[357]	make overnight	nes	overnight	K
sres (K/H), ssers (Z)	s(s)rus	make land	res (K/H), ares (Z)	land	K/H/Z
z(z)nez, zzenz	z(z)nuz	sell	---		T/H/Z[358]
ssuḍeḍ	ṭssuḍuḍ (H), ssuḍuḍ (Z)[359]	nurse (trans.)	ṭṭeḍ	nurse (intr.)	H/Z
ssufaġ /e/	ssufuġ[360]	make go out	ff(u)ġ	go out	K/T/Z

The following verbs insert *u* in the final position:

AOR	IPF	Translation	Base	Translation	Variety
skuḥ(ḥ)	skuḥḥu	cough	----	---	K
sbuk(k)	sbukku	explode (trans.)	bbuk(k)	explode (intr.)	K

4.5.6.3. Insertion of *i*

Some *s*-derived verbs form Imperfectives by insertion of the vowel *i* before the final consonant. In Hmed, the Imperfectives usually follow a different pattern (namely insertion of *a* before the final consonant) and are provided in the table below for comparison.

AOR	IPF: T/B/Z	IPF: H	Transl.	Base	Transl.
s(s)ireḍ	s(s)iriḍ	ṭssiraḍ	wash	---	
ssif(e)f	ssifif	ṭssifaf	sieve	---	
ssizaġ /e/ (B/Z) ssazaġ /e/ (T/H)	ssiziġ	ṭessazaġ /a/	make dry	azaġ /e/	be dry

[356] This pattern recalls the *C(:)CuC (BCuD)* Imperfectives of underived verbs, see Section 4.5.2. Different from the *BCuD* Imperfectives of underived verbs, this type of Imperfectives is also encountered in Ketama.

[357] Compare Zerqet Imperfective *s(s)nus*, Hmed Imperfective *ṭessensay~ṭesnusay*.

[358] The same Aorist and Imperfective are found in Ketama, where the base verb is *nez* 'be sold'.

[359] Imperfective *ṭssuḍaḍ* (Hmed) is also found.

[360] This verb has an alternative Imperfective in Ketama, *ssufaġ* /a/.

As mentioned above, one of the possible Imperfective forms of the verb *sseḥmu* 'make hot' (causative of *ḥmu* 'be hot') is *sseḥmuy* (K/T). Other Imperfective forms are: *sseḥmay* (K/T/B/Z), *ṭesseḥmay* (H), *sseḥmaw* (Z).

4.5.6.4. Addition of the final *-ay*

Some causatives form Imperfectives by adding *-ay* after the final consonant. This change may be combined with the Imperfective prefix *t/ṭ-* and other changes (see below). This formation is most frequent in Hmed and Zerqet, although some examples are found in Western Senhaja (Ketama/Taghzut).[361]

AOR	IPF	Transl.	Base	Transl.	Variety
sbedd	(t)sbedday[362]	make stand	bedd	stand	Z
ssens~ snes	tsensay (K), ssensay (T)[363]	extinguish	nes	be extinguished	K
ssens~ snes	ṭessensay (H), ssensay (T)	(make) overnight	nes	overnight	H
sraġ /e/	sserġay (T/Z), ṭesserġay (H)	make hot	raġ /e/	be hot	H/Z
s(s)kaw	teskaway	make dry	kkaw	be dry	Z
ssend	ssenday (K/Z)[364]	churn	---		K/Z
ssemġuṛ	ṭessemġuṛay (H), ssemġuṛay (Z)	make grow	mġuṛ	grow	H/Z
sgall (H), sgažž (Z)	ṭesgallay (H), sgažžay (Z)	make swear	ggall, gažž	swear	H, Z

The following Imperfectives in Hmed are formed by inserting the vowel *u* before the final consonant and adding the final *-ay* (which may be optional):

AOR	IPF	Translation	Base	Translation
ssens~snes	ṭesnusay (~ṭessensay)	(make) overnight	nes	overnight
sres	srusay (~srus)	make land	res	land
znez	ṭeznuzay (~znuz)	sell	---	

[361] More commonly, Ketama and Taghzut Imperfectives corresponding to Hmed/Zerqet *ay*-final Imperfectives have the final *i/a* alternation instead.

[362] The variant *sbedday* is preferred in Bunjel, while the variant *tsbedday* in preferred in Ikherruden.

[363] Alongside Imperfective *snus* (Ketama/Taghzut).

[364] Alongside *ssendaw* in Ketama.

4.5.6.5. Vowel Change and Insertion

Some Imperfectives are formed by both changing the existing vowel and inserting an additional vowel. The following verb, *s(s)iwel* (Zerqet), *s(s)iwež* (Taghzut) 'to speak' changes *i* to *a* and inserts *a* before the final consonant. Its Hmed counterpart, *siwi*, likewise changes the vowel and inserts *a*, in addition to the Imperfective prefix *ṭ-*:

AOR	IPF	Transl.
s(s)iwel (Z), s(s)iwež (T), siwi (H)	s(s)awal (Z), s(s)awaž (T), (ṭ)saway (H)	speak

The verb *ssaḵi* 'to cross (to the other side)' changes *a* to *u* and inserts *u* before the final vowel (the final *-u* becomes *-uy*) in the Imperfective in Ketama:

AOR	IPF	Translation
ssaḵi	ssuḵuy	cross (to the other side)

4.5.6.6. The Imperfective Prefix *ṭ-* with Causatives

The Hmed variety often uses the Imperfective prefix *ṭ-* with causatives, and usually combines it with other means to form the Imperfective.[365] However, when other changes are absent, the prefix *ṭ* is the only means to distinguish the Aorist from the Imperfective. The corresponding Imperfectives in other varieties may be homophonuous with the Aorist (cf. below).

AOR	IPF	Translation	Base	Translation
sɛum	ṭsɛum (~(ṭ)sɛumay)	make swim	ɛum	swim
ssemġuṛ	ṭessemġuṛ (~ṭessemġuṛay)	make grow	mġuṛ	grow

The verb *ssend* 'to churn' has several alternative Imperfectives in Ketama. One of the alternative forms is built solely by the prefix *t-*:

AOR	IPF	Translation
ssend	tssend (~ssnud~ssendaw~ssenday)	churn

[365] In some Imperfectives, the prefix *ṭ-* can be omitted, but the variants with *ṭ-* are more frequent.

4.5.6.7. Imperfective = Aorist

Some causative verbs remain unaltered in the Imperfective. This is found in Taghzut, and sometimes also in Ketama. In Eastern Senhaja (Hmed/Zerqet), the corresponding Imperfectives are distinguished from the Aorist by the final *-ay* and (sometimes) by the Imperfective prefix *t-* (Zerqet)/*ṭ-* (Hmed).

AOR(common) = IPF (Taghzut)	**IPF ≠ AOR: Hmed/Zerqet**	**Translation**	**Base**	**Translation**
ssemġuṛ[366]	ṭssemġuṛay (H) ssemġuṛay (Z)	make grow	mġuṛ	grow
s(s)kaw	tskaway (Z)	make dry	kkaw	dry
sbukk	tesbakkay (H/Z)	explode (trans.)	bbukk	explode (intr.)
sɛum	(ṭ)sɛumay (H)	make swim	ɛum	swim

4.5.7. Imperfective of *t-* *and* *n-*derived Verbs

Verbs with the prefixes *t-* and *n-* largely form Imperfectives using the same mechanisms as underived verbs. For example, a frequent way to form the Imperfective is by the insertion of *a* before the final consonant of the verb. In most varieties (Ketama, Seddat, Bunsar, Zerqet), the Imperfective prefix *t-* and the derivational prefix *t-* have the same form, and it is impossible to state with certainty if the two prefixes coalesce, or if the Imperfective prefix *t-* is simply absent.[367] In Hmed and Taghzut, by contrast, the Imperfective *ṭ-* is combinable with the passive prefix (Hmed *t-*, Taghzut *ṭ-* ~*t-*). In Taghzut, the Imperfective *ṭ-* can be (optionally) realized as *s-* before the passive *ṭ-* (dissimilation), as it is before a voiceless dental. With *n*-derived verbs, the Imperfective prefix is combinable. There is no *ṭ* > *s-* in Taghzut, unless the Imperfective prefix is followed by a voiceless dental.

In those varieties where the Imperfective *t-* and the passive *t-* coalesce, the Imperfective stem of *t*-derived passives can be homophonous with the Imperfective stem of the corresponding base verb without the passive prefix. The Imperfectives are distinguished in Taghzut and Hmed. Compare, for example, the Imperfectives of the stem II verb *sebbaq /e/* 'make precede' and the corresponding stem V *tsebbaq /e/* 'to be preceded' in most varieties vs. Taghzut/Hmed.

[366] For this verb, Ketama also has AOR = IPF.

[367] As discussed above, the Imperfective prefix *t-* is also absent in *s*-derived causatives in Ketama and Zerqet.

Verb without *t*-pfx (stem II)		Verb with *t*-pfx (stem V)		Var.
AOR	**IPF**	**AOR**	**IPF**	
sebbaq /e/	tsebbaq /a/	tsebbaq /e/	tsebbaq /a/	K/S/B/Z
sebbaq /e/	ṭsebbaq /a/	tsebbaq /e/	seṭsebbaq /a/ (T) ṭetsebbaq /a/ (H)	T/H

Insertion of *a* before the final consonant

In many Imperfectives, the vowel *a* is inserted before the final consonant. This change is combined with the Imperfective prefix with *t*-derived verbs in Hmed and Taghzut, and with *n*-derived verbs across Senhaja.

***t*-derived verbs**

AOR (all)	IPF: K/S/B/Z	IPF: T	IPF: H	Translation
tɛeṭṭel	tɛeṭṭal	seṭɛeṭṭal	ṭetɛeṭṭal	be late
tɛellem	tɛellam	seṭɛellam	ṭetɛellam	learn
tɛeṛṛef	tɛeṛṛaf	seṭɛeṛṛaf	ṭetɛeṛṛaf	be introduced
tɛuwwež	tɛuwwaž	seṭɛuwwaž	ṭetɛuwwaž	be bent
tneġġeḏ	tneġġaḏ	seṭneġġaḏ	ṭetneġġaḏ	be made threshed
trekkem	---	---	ṭetrekkam	be made wet

***n*-derived verbs**

AOR (all)	IPF: K/S/B/Z	IPF: T/H	Translation
nneɛzel	tenneɛzal	ṭenneɛzal	be separated
nnezṛaɛ /e/	tennezṛaɛ /a/	ṭennezṛaɛ /a/	be sown
nnežṛaḥ /e/	tennežṛaḥ /a/	ṭennežraḥ /a/	be injured
nnežmaɛ /e/	tennežmaɛ /a/	ṭennežmaɛ /a/	be gathered
nɛuwwež	tenɛuwwaž	ṭenɛuwwaž	be bent

In Hmed, *t*-derived passives of stem II causatives with an optional *s*- form Imperfectives in the same way, i.e. insert the vowel *a* before the final consonant, combined with the Imperfective prefix *ṭ*-:

AOR	IPF	Translation	Variety
ttesḍeḥḥek	ṭettesḍeḥḥak	be made laugh	H
ttesneɛɛes	ṭettesneɛɛas	be made sleep	H

Insertion of *a* before the final consonant, with gemination of C1

The following Hmed verb derived from the CC-type base verb, forms Imperfective by three mechanisms: 1) the Imperfective prefix *ṭ-*; 2) gemination of the initial consonant of the verb root, and 3) insertion of *a* before the final consonant. As syllabification changes, the prefix is realized as *t-* in the Aorist and as *tt-* in the Imperfective:

AOR	IPF	Translation	Variety
tġez	ṭetteqqaz	be dug	H

Insertion of *a* before the final *i* (final *-i* > *-ay*)

Imperfectives of verbs that end in *-i* (including *-i/a* alternating verbs in Ketama and Zerqet) are often formed by replacing the final vowel with *-ay*.

***t*-derived**

AOR (T/H/B) (*i/a* K/S/Z)	IPF: K/S/B/Z	IPF: T	IPF: H	Translation
tġeṭṭi(/a)	tġeṭṭay	seṭġeṭṭay	ṭetġeṭṭay	be covered
tlaqi(/a)	tlaqay	seṭlaqay	ṭetlaqay	meet (recipr.)

***n*-derived**

AOR	IPF: K/Z	IPF: T/H	Transl.
nneqli/a (K/Z), nneqli (T), nneqyi (H)	tenneqlay	ṭenneqlay (T), ṭenneqyay (H)	be fried
nneṭwi/a (K/Z), nneṭwi (T/H)	tenneṭway	ṭenneṭway	be folded

The following verb is *i*-final in Taghzut, *-i/a*-final in Ketama, or *u*-final in Ketama and Hmed. In the Imperfective, all varieties have the final *-ay*:

AOR	IPF: K	IPF: T/H	Transl.
nnebni/a (K), nnebni (T), nnebnu (K/H)	tennebnay	ṭennebnay	be built

Insertion of *a* before the final *u* (final *-u* > *-aw*)

In some cases, final *-u* corresponds to *-aw* in the Imperfective (cf. below for the alternative Imperfective):

AOR (K/H)	IPF (K)	IPF (H)	Translation
ttettu	ttettaw	ṭettettaw	be forgotten
tteẓẓu	tteẓẓaw	ṭetteẓẓaw	be planted

More rarely, the final *-u* is replaced by *-ay*:

AOR	IPF	Translation	Variety
tternu	ṭetternay	be added	H
ttezyu	ttezyay (K), ṭettezyay (H)	be slaughtered	K/H

Insertion of *u* before the final consonant

Some verbs that insert the vowel *u* between the prefix *n(n)-* and the first consonant of the base (cf. Section 3.3.4.3), form Imperfectives by inserting the vowel *u* before the final consonant of the verb. The vowel *u* thus occurs twice (Zerqet):

AOR	IPF	Translation	Variety
nnuṛẓem	tennuṛẓum	be released	Z
nnuršaq /e/	tennuršuq	be split	Z

Addition of the final *-i/a* (esp. Ketama/Taghzut) or *-ay* (esp. Hmed/Zerqet)

Some Imperfectives add *-ay* after the final consonant.[368] This has been found in Seddat, Hmed, Bunsar and Zerqet, with both *t-* and *n*-derived verbs, while in Ketama, the addition of the final *-ay* is only found with *n*-derivation. With *t*-derived verbs, in corresponding Imperfectives in Ketama and Taghzut, one finds the *-i/a* alternation after the final consonant. This type of Imperfectives is usually found with base verbs of the type *CC:*, e.g.

AOR	IPF: K/T	IPF: S/B/Z	IPF: H	Translation
thezz	thezzi/a	thezzay	ṭethezzay	be shaken
tšedd	tšeddi/a	tšedday	ṭetšedday	be caught

With *n*-derived verbs, the addition of the final *-ay* is also found in Ketama (but not in Taghzut, that has the final *-i/a* alternation). Compare the following forms (derived from the same verb):

Pfx	AOR	IPF: K	IPF: T	IPF in *-ay*	IPF: H	Transl.
t-	tfekk	tfekki/a	ṭfekki/a	tfekkay (Z, *K, *T)	ṭetfekkay	be untied
n-	nfekk	tenfakk	ṭenfekki/a	tenfekkay (K/Z)	ṭenfekkay	be untied

[368] Alternative Imperfectives are also possible (e.g. with the insertion of *a* before the final consonant), e.g. Hmed *tẓeḍ* 'be ground' > IPF *ṭetẓḍay* ~ *ṭetẓaḍ*. In Hmed, this feature is also found in *t*-derived passives of *s*-causatives, e.g. *ttesraġ /e/* 'to be heated' > IPF *ṭettesserġay*.

As follows from the above table, with *n*-derived verbs from the CC: base, three different mechanisms can be used to form the Imperfective: insertion of *a* before a final consonant; addition of the final *-i/a* or of the final *-ay*. Consider the following examples and their dialectal distribution:

AOR	**IPF: *-aC:***	**IPF: *-i/a***	**IPF: *-ay***	**Transl.**
nhezz	tenhaz (K)	tenhezzi/a (K/T)	tenhezzay (K/H/Z)	shake
nšedd	tenšadd (K)	tenšeddi/a (K)	tenšedday (K/H)	be caught
nsugg	---	tensuggi/a (K)	tensuggay (K/H)	be driven

Insertion of *i* before the final consonant and addition of *-ay*

Some verbs can form the Imperfective in two different manners in Zerqet: by the insertion of *a* before the final consonant (as in other parts of Senhaja, e.g. in Ketama), or by adding *i* before the final consonant and the addition of the final *-ay*. The verbs end in the back consonants (*ɛ, ḥ*) and have an underlying schwa in the Aorist.

***t*-derived**

AOR (all)	**IPF (K/Z)**	**IPF (Z)**	**Translation**
ttežmaɛ /e/	ttežmaɛ /a/	ttežmiɛay	be gathered
ttežraḥ /e/	ttežraḥ /a/	ttežriḥay	be injured

***n*-derived**

AOR (all)	**IPF (K/Z)**	**IPF (Z)**	**Translation**
nnežmaɛ /e/	tennežmaɛ /a/	tennežmiɛay	be gathered
nnežraḥ /e/	tennežraḥ /a/	tennežriḥay	be injured

Special cases and Imperfective = Aorist

The following passives of the type *tteC:u* (derived of base verbs of the type *C:u*) likewise form their Imperfectives in different manners. In the first type, the Imperfective is homophonous with the Aorist in Ketama, and is distinguished from the Aorist in Hmed by means of the Imperfective prefix *ṭ-*.[369] Alternatively, the Imperfective inserts *a* before final *u* (final *u* > *aw*).

[369] The Imperfective and Aorist stems are also homophonous in Taghzut and Zerqet, e.g. Taghzut *ṭeẓẓu* (AOR = IPF) 'be planted'. This is due to the fact that in these varieties, different from Hmed, the Imperfective prefix is not combinable with the passive prefix, or the two coalesce.

AOR	IPF1: K	IPF1: H	IPF2: K	IPF2: H	Translation
ttessu	ttessu	ṭettessu	ttessaw	ṭettessaw	be spread (bedding)
tteẓẓu	tteẓẓu	ṭetteẓẓu	tteẓẓaw	ṭetteẓẓaw	be planted
ttettu	ttettu	ṭettettu	ttettaw	ṭettettaw	be forgotten

4.5.8. Imperfective of *ttya/ttwa-, m-,* and Double-derived Verbs

4.5.8.1. Imperfective of *ttya/ttwa*-derived Verbs

Not all verbs derived with the prefixes *ttya/ṭṭuya/ttwa-* have an Imperfective stem.[370] However, some Imperfectives have been found. Within Zerqet, Imperfectives of *ttwa*-derived verbs are more frequent in the Bunjel dialect than in Ikherruden.[371] Most of them are formed using the same mechanisms as underived verbs, such as the insertion of *a* before the final consonant of the verb or the change of the final *-i* to *-ay*. In Ketama and Zerqet, the Imperfective prefix *t-* is not used with the derivational prefix *ttya-* (Ketama) and *ttwa-* (Zerqet), or, in any case, they coalesce, so that the Imperfective prefix *t-* is not distinct. In Hmed, by contrast, the Imperfective *ṭ-* precedes (and does not assimilate to) the prefix *ṭṭuya-*. In Taghzut, the Imperfective prefix *ṭ-* is realized as *s-* before *ṭṭya-*. Consider the following examples.

Insertion of *a* before the final consonant
With C-final verbs

AOR: K/T	AOR: H/Z	IPF: K/T	IPF: H/Z	Translation
ttyawweṯ (K) ṭṭyawweṯ (T)	ṭṭuyawweṯ (H) ttwawweṯ (Z)	ttyawwaṯ (K) seṭṭyawwaṯ (T)	ṭeṭṭuyawwaṯ (H) ttwawwaṯ (Z)	be hit
ttyaḵer (K) ṭṭyaḵer (T)	ṭṭuyaḵer (H) ttwaḵḵʷer (Z)	ttyaḵar (K) seṭṭyaḵar (T)	ṭeṭṭuyaḵar (H) ttwaḵḵʷar (Z)	be stolen
ttyaṭṭef (K) ṭṭyaṭef (T)	ṭṭuyaṭṭef (H) ttwaṭṭef (Z)	ttyaṭṭaf (K) seṭṭyaṭaf (T)	ṭeṭṭuyaṭṭef (H) ttwaṭṭaf (Z)	be caught

[370] In Tarifiyt, verbs with the passive prefix *ttwa-* cannot be used in the Imperfective (Cadi 2006).

[371] The Imperfectives found in the Bunjel dialect were not accepted as grammatical by the speakers from Ikherruden.

With V-final verbs (final *-i* > *-ay*)

AOR: K/T	AOR: H/Z	IPF: K/T	IPF: H/Z	Translation
ttyasi (K) ṭṭyasi (T)	ṭṭuyasi (H) ttwasi (Z)	ttyasay (K) seṭṭyasay (T)	ṭeṭṭuyasay (H) ttwasay (Z)	be lifted
ttyari (K) --- (T)	ṭṭuyari (H) --- (Z)	ttyaray (K) --- (T)	ṭeṭṭuyaray (H) --- (Z)	be written

In Zerqet, the following *ttwa*-derived verbs can occur in the Imperfective in the Bunjel dialect, but not in the Ikherruden dialect.

AOR (common)	IPF (Bunjel)	Translation
ttwabni/a	ttwabnay	be built
ttwak̲(k̲)^{w}er	ttwak̲(k̲)^{w}ar	be stolen
ttwak̲rez	ttwak̲raz	be plowed

In the following *u*-final verb found in Zerqet, the Imperfective stem can be homophonous with the Aorist. Alternatively, the Imperfective can be derived by the insertion of *a* before the final *u* (*-u* > *-aw*).[372]

AOR	IPF	Translation	Variety
ttwattu	ttwattu~ttwattaw	be forgotten	Z

4.5.8.2. Imperfective of *m*-derived Verbs

There are three *m*-derived verbs in Senhaja. For the verb *mɛuṛṛež* 'to limp' (Z), the Imperfective stem is *temɛuṛṛuž,* built with the prefix *t-* combined with the insertion of *u* before the final consonant. In the Bunjel dialect, the alternative form *nɛuṛṛež* derives Imperfective in the same way: *tenɛuṛṛuž*.

The verb *mnez* (T/S/H), *mmenz* (Z) 'to be sold' has the Imperfective stem *ṭmenzay* (T), *tmenzay* (S/Z-Bunjel), *ṭemmenzay* (H), built with the Imperfective prefix *t-* and the insertion of the final *-ay*. In the Ikherruden dialect of Zerqet, the Imperfective stem of this verb is *temnuzay*, built with the prefix *t-*, the insertion of the final *-ay*, and the insertion of *u* before the final consonant.

[372] The Imperfective *ttwattu* is preferred in Bunjel, and *ttwattaw* in Ikherruden. Compare also Hmed *ṭṭuyaṭṭu* (AOR) – *ṭeṭṭuyaṭṭaw* (IPF).

The verb *mmečč* (S/H/Z) ‘to be eaten’ has the Imperfective stem *tmečča*y (S/Z), *ṭemmečča*y (H), built with the Imperfective prefix and the insertion of the final *-ay*. The alternative form *tmečč* (T/H/Z) derives Imperfective in the same way, resulting in: *seṭmečča*y (T), *ṭetmečča*y (H), *tmečča*y (Z). In Zerqet, the Imperfectives of *mmečč* and *tmečč* coincide.

4.5.8.3. Imperfective of Double-derived Verbs

Among double-derived verbs, nearly all are *t*- or *n*-derived passives of *s*-causatives found in Hmed variety (cf. Section 3.3.9.2). One double-derived verb (causative of passive) is found in Zerqet: *snuṛẓem* ‘make released’ (from the base *ṛẓem* ‘to release). This verb inserts *u* before the stem in the Aorist, its Perfective = Aorist, and it has two Imperfective forms: either derived by inserting *a* before the final consonant, or by inserting *u* instead, copied from the initial position:

AOR = PERF	**IPF**	**Translation**	**Variety**
snuṛẓem	snuṛẓam~snuṛẓum	make released	Z

The remaining examples of double-derived verbs are *t*- and *n*-derived passives of *s*-causatives in Hmed. These verbs form MA(N) stems as expected: the Perfective stem is usually homophonous with the Aorist, while the Imperfective is usually formed using the same means as in underived verbs: the Imperfective prefix *ṭ* combined either with the insertion of *a* before the final consonant, or with the addition of the final *-ay*. Rarely, the Imperfective prefix *ṭ-* is used alone. Some examples follow.

1) Insertion of *a* before the final consonant

***t*-prefix + *s*-prefix**		***n*-prefix + *s*-prefix**		**Translation**	**Var.**
AOR	**IPF**	**AOR**	**IPF**		
tteṣḏeṣ	ṭettesḏaṣ	nneṣḏeṣ	ṭennesḏaṣ	be made laugh	H
ttessehyeḵ	ṭettessehyaḵ	nnessehyeḵ	ṭennessehyaḵ	be made sick	H
ttessenker	ṭettessenkar	nnessenker	ṭennessenkar	be made rise	H
ttesserkem	ṭettesserkam	nnesserkem	ṭennesserkam	be made wet	H

The verb *tteznez* ‘be sold’ (double-derived in Ketama where the base *nez* ‘be sold’ is still in use, and double-derived historically in Hmed) forms its Imperfective in the same way in Hmed. Compare the Ketama forms. The difference between Ketama and Hmed is that in Ketama, the Imperfective *t(t)*- and the passive *t(t)*- coalesce.

***t*-prefix + *s*-prefix**		***n*-prefix + *s*-prefix**		**Translation**
AOR	**IPF**	**AOR**	**IPF**	
tteznez (K/H)	tteznaz (K), ṭetteznaz (H)	nneznez (K/H)	tenneznaz (K) ṭenneznaz (H)	be (made) sold

2) Addition of the final *-ay*

***t*-prefix + *s*-prefix**		***n*-prefix + *s*-prefix**		**Translation**	**Var.**
AOR	**IPF**	**AOR**	**IPF**		
ttesseb̲	ṭettes(s)b̲ay	nnesseb̲	ṭennes(s)b̲ay	be irrigated	H
ttessemġuṛ	ṭettessemġuṛay	nnessemġuṛ	ṭennessemġuṛay	be grown	H
ttesraġ /e/	ṭettesserġay	nnesraġ /e/	ṭennesserġay	be heated	H
ttesbukk	ṭettesbukkay	nnesbukk	ṭennesbukkay	be exploded	H

3) The Imperfective prefix *ṭ-* (optionally combined with other changes)

The following verb can form the Imperfective stem by the Imperfective prefix *ṭ-* alone. Alternatively, it also inserts the vowel *u* before the final consonant (copied from the *u* inserted before the base following the causative *s-*):

***t*-prefix + *s*-prefix**		***n*-prefix + *s*-prefix**		**Translation**	**Var.**
AOR	**IPF**	**AOR**	**IPF**		
tṣṣuḍeḍ	ṭetṣṣuḍeḍ~ ṭetṣṣuḍuḍ	nṣṣuḍeḍ	ṭenṣṣuḍeḍ~ ṭenṣṣuḍuḍ	be nursed	H

V-final verbs (that usually have the alternation *-i/a* in the Perfective) form the Imperfective by the change of the final vowel to *-ay*:

***t*-prefix + *s*-prefix**		***n*-prefix + *s*-prefix**		**Translation**	**Var.**
AOR	**IPF**	**AOR**	**IPF**		
ttessebḏu	ṭettessebḏay	nnessebḏu	ṭennessebḏay	be started	H
ttessebzi	ṭettessebzay	nnessebzi	ṭennessebzay	be made wet	H
ttesseḥmu	ṭettesseḥmay	nnesseḥmu	ṭennesseḥmay	be heated	H
ttesseẖwi	ṭettesseẖway	nnesseẖwi	ṭennesseẖway	be emptied	H

4.6. The Imperfective Negative (Mezduy, Parts of Zerqet)

As mentioned previously, the negative verb stems are only found in Mezduy and parts of Zerqet (Wersan), and are absent in the rest of Senhaja (cf. Section 4.4 on Perfective Negative). This section is based on the data from the Wersan dialect of Zerqet and the Lahsen dialect of Mezduy. In the tables below, they are listed as W (Zerqet-Wersan) and M (Mezduy). The Imperfective Negative is restricted to a few verbs. In cases where the stem is different, it is derived from the Imperfective (positive) by a vowel change: *a* > *i*, e.g.

AOR	IPF	IPF.NEG	Translation	Variety
af	taf	tif	find	W[373]
degdeg	ddegdag	ddegdig	beat	W/M

However, there are also examples where *a* of the Imperfective remains unchanged (and hence, IPF:POS = IPF.NEG), e.g.

AOR	IPF (POS = NEG)	Translation	Variety
af	taf	find	M
neġ	nnaq	kill	W/M
ġer	qqaṛ	study	W/M
wweṭ	kk^{w}aṭ	beat	W/M
ṣenneṭ	tṣennaṭ	listen	W/M
agem	tagem	fetch water	W/M
azzel, azzer	tazzel, tazzer	run	W, M
gabel, qaber	tgabal, tqabar	oversee	W, M

Causatives

Among causatives, there are verbs that change *a* to *i*, and those which keep *a* in the Imperfective Negative. The verb *sseḵšem* 'to make enter' (causative of *ḵšem* 'to enter') has the Imperfective *sseḵšam* (Z/M) that changes to *sseḵšim* in IPF.NEG in Zerqet, and optionally in Mezduy:

Base	CAUS:AOR	IPF	IPF.NEG	Translation	Variety
ḵšem	sseḵšem	sseḵšam	sseḵšim, sseḵšam~sseḵšim	make enter	W, M

[373] In Mezduy, the IPF.NEG = IPF (*taf*).

The following causatives keep *a* in Imperfective Negative:

Base	CAUS:AOR	IPF (POS = NEG)	Translation	Variety
ḏeṣ	ssḏeṣ	sseḏṣay	make laugh	W
laqi/a	slaqi/a	slaqay	make meet	W
raqi/a	sraqi/a	sraqay	make meet	M

The following denominal verb (based on the word *awal* 'speech, word') likewise remains unaltered in Imperfective Negative:

AOR	IPF (POS = NEG)	Translation	Variety
ssiwel	ssawal	speak	W
ssiwer	ssawar	speak	M

In most cases (and in all cases when there is no *a* in the Imperfective positive), the Imperfective Negative is the same as Imperfective Positive, e.g.

Type	AOR	IPF (POS = NEG)	Translation	Variety
CCC	qšeɛ	qšuɛ	spot, detect	W/M

4.7. Conclusions

In Berber, it is customary to speak of MAN (Mood, Aspect, Negation) stems. Most Senhaja varieties distinguish three MA(N) stems – Aorist, Perfective, and Imperfective – without distinct negative stems. Mezduy and the Wersan dialect of Zerqet preserve two negative stems: the Perfective Negative and the Imperfective Negative. Some stems can be homonymous.

The Aorist, or unmarked stem, when appearing without a particle, is usually used for the imperative or as a consecutive (sequential, narrative) form. More commonly, it is preceded by the irrealis *a(ḏ)* or the future *(ma)š-a(ḏ)*. In this case, it expresses a non-realized event (irrealis, future, possibility, wish, subjunctive, etc.). The Perfective has different interpretations depending on the verb: a dynamic event in the past, or a stative (including resultative) event. The Imperfective is used for the progressive, simultaneous, habitual, iterative, durative, etc. It may also express inchoative with verbs describing states/quality.

In Senhaja, many verbs do not formally distinguish between the Aorist and the Perfective (in such verbs, AOR = PERF). The Imperfective is almost always distinguished. The formation of MA(N) stems is related to the formal characteristics of the verb. For example, most CCC verbs do not formally distinguish between the Aorist and the Perfective.

1) The Aorist

There are variations within the Aorist paradigms. In Ketama, some verbs have *u*~Ø alternation, while some optionally acquire the final *-i* in 2P and 3P. In Zerqet, some verbs have the final *-i/a* alternation (*i-* appears in 1S and 2S, and *-a* in other persons), corresponding to the invariable *-i* in the rest of Senhaja. In Ketama, the *i/a* alternation in the Aorist is limited to *t-* or *n*-derived verbs, e.g. *tɛeššia* (K/Z) vs. *tɛešši* (H/T) 'to have lunch'. Usually, the Aorist stem without the PNG affixes equals the Imperative singular. Some verbs acquire *h-* in IMP:SG in Ketama that is absent in other forms.

2) The Perfective

The Perfective is often formed by the following mechanisms:

1) the initial vowel change, often *a-* > *u-*, e.g. *asi* > *usi* 'carry' (pan-Snh.); cf. in derived verbs: *ssaḥel* > *ssuḥel* (Z) 'make tired'; *ttayem* > *ttuyem* 'be drawn (of water)' (H); *ṭṭyaḵer* > *ṭyuḵer* 'be stolen' (T). The initial *u* after the causative *s-* can change in Ketama/Hmed to *a*, e.g. *ssufaġ* > *ssafaġ* (K/T/H) 'make go out'.

2) the medial vowel change (*i* > *a*; *u* > *a*). This is found in Ketama/Hmed, e.g. *žif* > *žaf* 'choke' (K/H), *fuṭ* > *faṭ* 'pass' (K/H); in derived verbs: *sɛum* > *sɛam* (K/H) 'make swim'; *tsugg* > *tsagg* 'be driven' (H).

3) the final vowel insertion or alternation. In this case, the Perfective has *-i/a* alternation, e.g. *kk* > *kki/a* 'give'; *ḵes* > *ḵsi/a* 'herd'; *bnu* > *bni/a* 'build'; *ḫwi* > *ḫwi/a* 'empty'. Verbs that change the final *-u* to the final *-i/a* in the Perfective is an isogloss that distinguishes Senhaja from Tarifiyt. The vocalization in the Perfective of *CC* and *CCV* verbs is the same (e.g. *ḵes* > *ḵsi/a* 'herd', and *bnu* > *bni/a* 'build'), while in Tarifiyt, the alternating vowel differs (Kossmann 2017a: 99), making it another isogloss. Derived verbs can also have *-i/a* alternation in the Perfective, e.g. *sseḥmu* > *sseḥmi/a* (K/H/Z) 'make hot', *sseḫwi* > *sseḫwi/a* (K/H/Z) 'make empty'; *ṣḍeṣ* > *ṣṣeḍṣi/a* (T/H/Z) 'make laugh'; *twerri* > *twerri/a* (H) 'be shown'; *ṭṭuyawi* > *ṭṭuyawi/a* (H) 'be taken'; *tḵes* > *tteḵsi/a* (H) 'be herded'.

In Zerqet, different from other varieties, the *-i/a* alternation can occur both in the Aorist and the Perfective, e.g. *ġenni/a* (most varieties *ġenni*), PERF *ġenni/a* 'to sing'. This is also found in causatives. With *t-* and *n*-derived verbs, the *i/a* alternation is also found in Ketama, e.g. *tteḫwi/a* (most Snh. *tteḫwi*), PERF *tteḫwi/a* 'be emptied'.

In many types of verbs, especially CCC and CC:C, AOR = PERF, e.g. *ḫḍem* 'work', *ḫelleṣ* 'pay'; but also in other types, e.g. *qqen* 'tie', *ġezz* 'chew', *bergeg* 'gossip', *mġuṛ* 'grow'. V-initial verbs starting in *u-* and *i-* can remain unchanged in the Perfective.

Derived verbs from AOR = PERF bases can also have AOR = PERF, e.g. *sseḵšem* 'make enter', *ssemġuṛ* 'make grow'; *ttwaḥḏem* (Z) 'be worked' (Z). Some CC verbs have AOR = PERF: *ḏ̣er* (S) 'to fall', *ġez* (H) 'to dig', *res* (H) 'to land', and *rez* (H/B/Z) 'to return (trans.)'. The existence of *CC** verbs with an alternating vowel and *CC* (AOR = PERF) verbs is an isogloss that distinguishes Senhaja from Tarifiyt.

3) The Perfective Negative (Mezduy, Parts of Zerqet)

The Perfective Negative is preserved in Mezduy and parts of Zerqet (Wersan). It is derived from the Perfective by the vowel change (*a* > *i*) or insertion, e.g. *ḏ̣haṛ* (AOR = PERF) > *ḏ̣hiṛ* 'appear'. Sometimes, *a* remains unchanged, e.g. *faṭ* (AOR = PERF = PERF.NEG) 'to pass'. Verbs without a plain vowel insert *i* before the final consonant, e.g. *ssen* (AOR = PERF) > *ssin* 'to know'. Unlike in Tarifiyt, *i* can be inserted in CC:C verbs, e.g. *huwweḏ* (AOR = PERF) > *huwwiḏ* 'descend', and in CCCC verbs, e.g. *qefqef* (AOR = PERF), PERF.NEG *qefqif* 'shiver'. Verbs that have *-i/a* alternation in the Perfective have no alternation in PERF.NEG, and have *-i* in all persons. When the vowel of the Perfective is *u*, it remains unchanged.

4) The Imperfective

There are different ways to form the Imperfective: C2 gemination; C1 gemination combined with *u* insertion; prefix *t(t)-* (alone or combined with other features). The same verb can have multiple Imperfectives. There are dialectal preferences in the Imperfective formation.

C2 Gemination. The Imperfective in CCC verbs is often formed by C2 gemination (across Senhaja), e.g. *ḵrez* > *ḵerrez* 'to plow'. CCV and CC verbs can also form Imperfective in this way, e.g. *bnu* > *bennu* 'build', *ḏ̣eṣ* > *ḏ̣eṣṣ* 'laugh'.

C1 gemination and vowel insertion (CC > C:aC, CCC > C(:)CuC). Some Imperfectives of CC verbs are formed by C1 gemination and insertion of *a* before the final consonant (CC > C:aC), e.g. *ṛeẓ* > *ṛṛaẓ* 'break' (pan-Snh.). The schemes CCC > C(:)CuC and CCi > C(:)Cuy are found in Zerqet and Hmed, e.g. *ḥfer* > *ḥ(ḥ)fur* (Z) 'to dig', *fti* > *f(f)tuy* 'to recite'. Gemination in C1 is not audible in Hmed.

The Prefix *t(t)-*. The Imperfective can be formed by the prefix *t(t)-*. In Ketama, the prefix is realized as *tt* before a vowel; in Zerqet, the prefix is *t*, and in Hmed/Taghzut, it is *ṭ*. The prefix can co-occur with the causative *s-* in Hmed (and sometimes in Zerqet). This must be an innovation. The prefix does not combine (or coalesces) with the passive *t-* in most varieties, except Hmed, where the Imperfective *ṭ-* is combinable with the passive *t*, and Taghzut, where the Imperfective *ṭ* is realized as *s*

before the passive *ṭ~t*. Similarly, in Ketama and Zerqet, the Imperfective prefix is not used with the passive *ttya-* (K), *ttwa-* (Z), while Hmed can combine it with *ṭṭuya-*. In Taghzut, the Imperfective *ṭ-* is realized as *s-* before *ṭṭya-*. The Imperfective prefix is combinable with *n*-derivation.

Prefix *t(t)-* is the usual way to form Imperfectives of V-initial verbs, e.g. *ari* > *ttari* (K), *ṭari* (T/H), *tari* (Z) 'to write'. Prefix *t(t)-* can be used to form Imperfectives with some C-initial verbs, e.g. *kk* > *tekk* (H/B/Z) 'give', *qqen* > *tteqqen* (K), *teqqen* (Z), *ṭeqqen* (H) 'tie'; *žži* > *ttežži* (K), *težži* (Z) 'heal'; *ttu* > *ttettu* (K), *tettu* (Z) 'to forget'. CCVC verbs can form Imperfective by the prefix *t-*, optionally combined with the final *-ay* in Hmed, e.g. *mġuṛ* > *ttemġuṛ* (K), *ṭemġuṛ(ay)* (H) 'to grow', cf. causative *ssemġuṛ* > *ṭessemġuṛ(ay)* 'to make grow'; the passive *ttettu* > *ṭettettu* (H) 'to be forgotten', double-derived *tṣṣuḍeḍ* > *ṭetṣṣuḍeḍ* (H) 'be nursed'.

The Prefix *t(t)*- combined with vocalic changes. The prefix is often combined with vocalic changes, such as 1) vowel insertion; 2) final vowel replacement; 3) final vowel addition; 4) vowel insertion/replacement and addition of a final vowel.

(1) Insertion of a vowel before the final consonant

The inserted vowel is usually *a*, sometimes *i* or (rarely) *u*, e.g *ḥeḷḷeṣ* > *tḥeḷḷaṣ* 'to pay' *qefqef* > *tqefqaf* 'to shiver', *bežbež* > *tbežbiž* 'be flooded', *ɛaṛeḍ* > *tɛaṛaḍ* 'to invite'; causatives *sseḵšem* > *sseḵšam* 'to make enter'; *ssireḍ* > *ssiriḍ* (T/B/Z), *ṭssiraḍ* (H) 'to wash'; *znez~zzenz* > *z(z)nuz* 'to sell' (K/T/H/Z); passives: *tneġġeḍ* > *tneġġaḍ* (most Snh.) 'be threshed'; *nneɛzel* > *tenneɛzal* (most Snh.) 'be separated'; *ttyawweṭ* > *ttyawwaṭ* (K), *ttwawweṭ* > *ttwawwaṭ* (Z) 'be hit'; *mɛuṛṛež* > *temɛuṛṛuž* (Z) 'to limp'; *nnuṛẓem* > *tennuṛẓum* (Z) 'be released'; *snuṛẓem* > *snuṛẓum* (Z) 'to make released'.

(2) Replacement of the final vowel (usually with *-ay* or *-i/a*)

Some *i*-final verbs (*-i/a* in Zerqet) have the final *-ay* in the Imperfective, e.g. *ġenni* (Z *ġenni/a*) > *tġennay* 'sing'. The final *-a* can also be replaced with *-ay*, e.g. *ḥfa* > *tteḥfay* (K) 'be dull'. The final *-u* can be replaced by *-ay* or *-aw*, e.g. *ḥlu* > *tteḥlaw* (K) 'be sweet'. Examples with derived verbs include: causatives *ssemġi* > *ssemġay* (K/Z), *ṭessemġay* (H) 'make sprout', *ssetru* > *ssetraw* (Z) 'make cry'; passives: *tġeṭṭi* (*tġeṭṭi/a* in K/Z) > *tġeṭṭay* (most Snh.) 'be covered'; *nneṭwi* (*nneṭwi/a* in K/Z) > *tenneṭway* (K/Z) 'be folded'; *ttyasi* > *ttyasay* (K), *ttwasi* > *ttwasay* (Z) 'be lifted'; double-derived *ttesseḫwi* > *ṭettesseḫway* (H) 'be emptied'; *ttettu* > *ttettaw* (K), *ṭettettaw* (H) 'be forgotten'; *ttwattu* > *ttwattaw* (Z) 'be forgotten'.

(3) Addition of the final vowel, usually *-i/a ~ -a(y)*

Some verbs add the final *-i/a* (K) or *-ay* (H/Z), e.g. *ẓuṛ > tẓuṛi/a* (K), *tẓuṛay* (Z), *ṭẓuṛay* (H) 'visit'; *žif > tžifi/a* (K), *ṭžifay* (H) 'choke'; *fekk > tfekki/a* (K), *tfekkay* (Z), *ṯfekkay* (H) 'untie'. The Imperfective prefix degeminates the initial consonant in Ketama and Zerqet, but not always in Hmed, e.g. *qqim* 'stay' > *tqimi/a* (K), *tġimay* (Z), *ṭġimay~ ṭqqimay* (H). Causatives can also insert *-ay*, e.g. *ssemġuṛ > ssemġuṛay* (Z), *ṭessemġuṛay* (H) 'make grow', double-derived *ttessemġuṛ > ṭettessemġuṛay* 'be made grown' (H). Compare the passives: *tfekk > tfekki/a* (K/T), *tfekkay* (Z), *ṭetfekkay* (H) 'be caught'; *mnez* (T/S/H), *mmenz* (Z) > *ṭmenzay* (T), *tmenzay* (S/Z), *ṭemmenzay* (H) 'be sold'; *mmečč > tmeččay* (S/Z), *ṭemmeččay* (H), cf. *tmečč* (T/H/Z) > *seṭmeččay* (T), *ṭetmeččay* (H), *tmeččay* (Z) 'be eaten'.

(4) Insertion/replacement of a vowel and addition of the final vowel (*-i/a, -ay*)

Some verbs (especially CC and C:C) combine the vowel insertion and the addition of the final *-i/a* (K), *-ay* (H/Z), e.g. *res* 'land' > *trusi/a* (K), *ṭrusay* (H). Some verbs change the medial vowel, e.g. *ḷḷuẓ> tḷaẓi/a* (K), *ṭeḷḷaẓay* (H) 'be hungry'; *ɛmaṛ> teɛmiṛay* (Z) 'be full'. Examples with derived verbs include: causative *sres > srusay* 'make land' (H); passives *ttežraḥ* /e/ > *ttežriḥay* (Z) ~ *nnežraḥ > tennežriḥay* (Z) 'be injured'.

Exceptions. Some verbs may lack the Imperfective, or the Imperfective can be irregular or suppletive. Exceptionally, AOR = IPF, in cases when the Imperfective has been reinterpreted as the Aorist, e.g. *ttru* 'cry' (K); *tsyay* 'hear' (B). Some causatives have AOR = IPF in Taghzut, while other varieties add the final *-ay*, e.g. *ssemġuṛ* (T) 'make grow'. In passives, AOR = IPF is found in Ketama, e.g. *ttettu* (AOR = IPF, alongside IPF *ttettaw*) 'be forgotten'.

5) The Imperfective Negative (parts of Zerqet and Mezduy)

The Imperfective Negative is restricted to a few verbs, and is found in Mezduy and in parts of Zerqet (Wersan). It is derived from the Imperfective by a vowel change: *a > i*, e.g. *degdeg*, IPF *ddegdag*, IPF.NEG *ddegdig* 'beat'. There are also examples where *a* of the Imperfective remains unchanged, e.g. *agem > tagem* 'draw water'. Among causatives, there are verbs that change *a* to *i*, and those which keep *a*, e.g. *sseḵšem* 'to make enter' has the Imperfective *sseḵšam* that changes to *sseḵšim* in IPF.NEG in Wersan, and optionally in Mezduy. Many causatives remain unaltered in the IPF.NEG, e.g. *slaqi/a*, IPF *slaqay* (Wersan), *sraqi/a*, IPF *sraqay* (M) 'make meet'; *ssiwel*, IPF *ssawal* (Wersan), *ssiwer*, IPF *ssawar* (M) 'speak'. In most cases (and in all cases when there is no *a* in the Imperfective), the Imperfective Negative is the same as Imperfective.

5. The Verbal Complex

5.1. Introduction

The verbal complex is defined here as the verb together with the verbal clitics (pronominal clitics of the DO and IO series, and the ventive clitic *d*), and some preverbal elements (such as verbal particles). The postverbal negation particles are also considered as part of the verbal complex. Some of the preverbal elements may trigger clitic fronting, while others don't.[374] Clitic fronting is known as *attraction* in literature on Berber, and the element that causes clitic fronting (e.g. a preverbal particle or a conjunction) is an *attractor* (cf. Chapter 12). In this chapter, verbal particles are discussed first (Section 5.2). Verbal clitics are discussed in Section 5.3 Such clitics normally appear with verbs. However, there exist a limited number of pseudo-verbs that also accept DO pronominal clitics. They are discussed in Section 5.3.4. Section 5.4 discusses markers and auxiliaries of the past, future, and habitual/progressive. These markers/auxiliaries can be combined with a verbal as well as a non-verbal predicate. Section 5.5 discusses the particle *aqa* (present relevance) that can also function as a pseudo-verb, especially in locative expressions.

In this thesis, following the linguistic conventions, affixes are separated by a hyphen (-), and clitics are separated by an equation sign (=). Verbal clitics are considered attached to the verb (whether in a postverbal or preverbal position). The reason why the clitics are not written as attached to a preverbal element (such as the negator *u*) is that in some contexts, such as relativization, clitic fronting takes place, even in the absence of an overt attractor (a relative marker). Also, in subordinate clauses, although the subordinating conjunction can be analyzed as an attractor, it does not always play the role of a clitic host, because in some examples, there can be a pause between the conjunction and the following clitic. In such cases, the clitics must be analyzed as attached to the verb. Hence, we consistently write them as attached to the verb, also in contexts where the preverbal element could have been analyzed as an attractor (and a clitic host). Preverbal and postverbal particles (such as negation markers) are written separately from the rest of the verbal complex. In one particular context, namely in prohibitives in some varieties, the fronted clitic appears following a general negator *u*, and preceding a prohibitive negator *i*. In such cases, both the preverbal particles and the clitic are written separately from the verb. The conventions followed here are just one possibility, and different choices could have been made.

[374] Clitic fronting is discussed in Chapter 12. See Chapter 14 on the morphophonology of the verbal complex.

5.2. Verbal Particles

There are two groups of verbal particles. Particles in the first group are modal particles: they carry information about the mood (Section 5.2.1). In the second group, there are preverbal and postverbal negative particles, whose function is to negate the structure (Section 5.5.2). The combination of the particles is discussed in Section 5.2.3.

5.2.1. Modal Particles

5.2.1.1. The Irrealis Particle *a(ḏ)*

There are two modal preverbal particles common to Senhaja: the irrealis marker *a(ḏ)*, glossed NR, and the future marker *š-a(ḏ)*, glossed FT-NR. Both particles signal that the action expressed by the verb has not been realized.[375] Although in many contexts, *a(ḏ)* and *š-a(ḏ)* are interchangeable, there are some contexts where only *a(ḏ)* can be used. For example, *a(ḏ)* is used with verbs that are complements of another verb (such as 'to want/need', 'to be able to'), etc. For example:

(1) *i-ḫeṣṣ* =*as* *a* *y-eḵrez* (K)
3MS-need:P =3S:IO NR 3MS-plow:A
'He wants/needs to plow.'

The final *ḏ* of *aḏ* behaves differently in different varieties and contexts. In most cases, it is only preserved in an intervocalic position. In Ketama, this is limited to the 1S and 3P verb forms (i.e. those that have no subject prefix) with V-initial stems. In Zerqet, *ḏ* is also preserved with 3MS verb forms, that carry the prefix *i-*. This is different in Ketama, where 3MS prefix is realized as *y-* following the irrealis marker *a*. In Taghzut and Hmed, the final *ḏ* of the irrealis marker has been reinterpreted as the 3MS verb subject prefix (in specific contexts), see Section 3.4.1.2. The same element *ḏ* has also been generalized to other contexts. For example, it appears following the negator *u* (*uḏ*).

[375] In Ghomara (Mourigh 2015: 353, 366) and Tarifiyt (Mourigh & Kossmann 2021), the irrealis particle has a special allomorph in certain syntactic contexts, especially in relative clauses and similar constructions, and in certain subordinated clauses. Senhaja uses the same forms (particles *aḏ* and *š-a*) regardless of the syntactic construction. In some texts in Ketama, alongside *š-a*, the particle *ra* has been found. It can be considered a rare (free) allomorph of *š-a* in specific contexts.

When the irrealis particle *aḏ* is followed by a verb form in 2S, 3FS, or 2P (prefix *ṯ-*), there is assimilation: *aḏ + ṯ > aˆ t-* (cf. Section 14.1.2.1). When the irrealis particle is followed by a fronted clitic starting in *a-* (such as 3S:IO *as*), the vowels coalesce (cf. Section 14.3).

5.2.1.2. The Future Particle *š-a(ḏ) ~ maš-a(ḏ)*

The second preverbal modal particle is *š-a(ḏ)*, that also has a variant *maš-a(ḏ)*. It consists of the future marker *(ma)š* (possibly from the Arabic participle *maši* 'going') followed by the irrealis *a(ḏ)*. The same particle is found in Ghomara (Mourigh 2015). Most commonly, the particle expresses a simple future, e.g.

(2) *š-a* *y-eḵrez* (K)
š-a *ḏ-eḵrez* (H)
š-aḏ *i-ḵrez* (Z)
FT-NR 3MS-plow:A
'He will plow.'

The particle can be used in questions, e.g.

(3) *fuqaš* *š-a* *ˆt-ddu* (K/H)
when FT-NR 3FS-go:A
'When will she go?'

In some cases, in combination with the verb 'to be', the particle *š-a* expresses a probability:

(4) *š-a* *y-yi* *g* *uḫḫam* (K)
FT-NR 3MS-be:A in house:EA
'He is probably at home.'

The following example shows the allomorph *aḏ* before a vowel-initial verb stem:

(5) *š-aḏ* *ani-n* (K/H)
FT-NR ride:A-3P
'They will ride.'

The morpheme *ma* also exists on its own in Senhaja, separately from the future marker *(ma)š-a*. In fact, there are different *ma*'s. One *ma* serves as a negation marker in specific contexts (cf. below). Another *ma* is used in combination with some conjunctions and has a function similar to the English '-ever', e.g. *ani ma* 'wherever'.

5.2.1.3. The Future Particle *la* (Taghzut)

Other preverbal modal particles are dialect-specific. In Taghzut, alongside *š-a(ḏ)*, the future particle *lˆa(ḏ)* is sometimes used, which is a combination of *la* and the irrealis *a(ḏ)*:

(6) *l ˆa* *ˆt-eḵrez* (T)
F^NR 3FS-plow:A
'She will plow.'

This *lˆa* is a different morpheme than *la* found in Imperfective Negative forms (see below).[376]

5.2.2. Negative Particles

There are negative particles that form a bipartite negation.[377] They may have different forms depending on the context (verb mood and aspect) and dialect. In most cases, the preverbal negative particle is combined with the postverbal negative particle *š* ~ *ši* ~ *šay*.[378] In specific contexts, either the postverbal or the preverbal negator can be absent. A single negator *maši* can be also used with a verbal predicate. For more details on the negation of the verbal predicate, see Section 5.6.

[376] The *la* found with the Aorist forms may be the same as the "asseverative *la*" in Arabic (see e.g. Testen 1998 and 2006, Weigelt 2020). On *la* in North Moroccan Arabic, see Aguadé 2004. In Tashelhit, there is also a marker *la* that can be considered an assertive ('indeed'), but it is used with Perfective verb forms. Boukhris (1998: 90-91) considers it a homonym of the present tense marker *la*.

[377] On negation in Berber, see e.g. Chaker & Caubet 1996, Mettouchi 2006, Lafkioui 2013b, Bensoukas 2013, Brugnatelli 2014, Lafkioui & Brugnatelli 2020. The main negative particle precedes the verb in all Berber varieties. Some Berber varieties (e.g. Tarifiyt, Tamazight, Taqbaylit) make use of a second negative particle which follows the verb. In Senhaja, the postverbal particles are almost always used. In Ketama, in specific context, the preverbal particle can be absent. On Jespersen's cycle in Arabic and Berber, see Lucas 2007.

[378] In Ketama, there is a tendency to use the postverbal negator *ši* in IMP.NEG and *šay* in PERF.NEG, although postverbal negators *š/ši/šay* are normally interchangeable.

5.2.2.1. The General Negator *u*

The most frequent form of the preverbal particle is *u*, which is found across Senhaja and in most contexts, e.g.

(7) *u* *n-ek̲rez* *š(ay)* (pan-Snh.)
NEG 1P-plow:P NEG
'We did not plow.'

In Ketama, the preverbal negator is absent in the presence of the future particle *(ma)š-a(d̲)*, cf. below. The preverbal negator can also be omitted with 3MS verbs forms (prefix *i-*), e.g.

(8) *i-dda* *šay* (K)
3MS-go:P NEG
'He did not go.'

Outside these contexts, the preverbal negative particle is usually present in the dialect of Beni Aisi, but can be occasionally omitted in other Ketama dialects.

5.2.2.2. Specialized negators

Besides the general negator *u*, Senhaja has several specialized negators that only occur in restricted contexts.

Negator *ma* (Aorist, prohibitive based on the Aorist)

The negator *ma* (probably from Arabic) can be used with the Aorist verb forms to negate an unrealized event (Ketama, Taghzut, Hmed).[379] In Taghzut (and Hmed), the negators *u* and *ma* can be combined. The final vowel *-a* of *ma* and the following irrealis particle *a* coalesce, and the presence of the irrealis *a(d̲)* is only visible in the assimilation of the following 2S/3FS/2P verb subject prefix *t̲-*, which is realized as *t-*:

(9) *m(a)* *ˆa* *ˆt-ek̲šem* *š* (K/T/H)
NEG NR 3FS-enter:A NEG
'She will not enter.'

[379] On different points of view on the negator *ma* in Arabic of Mauritania, see Taine-Cheikh 1996.

The negator *ma* is not found with Perfective and Imperfective verb forms. In some examples, the Aorist and Perfective verb forms are distinguished only by the negator, e.g. (Hmed):

(10) (a) *ma (ˆa) ḵešm-aġ š* (H)
NEG NR enter:A-1S
'I will not enter.'
(b) *u ḵešm-aġ š* (H)
NEG enter:P-1S
'I did not enter.'

It is interesting that the negator *ma*, which is used in Moroccan Arabic in all contexts, has a restricted use in Senhaja, occurring only in specific contexts (irrealis and prohibitive).[380] It is possible that this development took place due to the influence of the future marker *maš-a*, so that currently, morpheme *ma* combines the properties of the negation and the future marker (conflation): *(u) ma maš-a > (u) ma š-a > (u) ma (š-)a*.

The negator *ma* is also sometimes used in Ketama prohibitives (a calque on the Arabic).[381] The following verb form has the regular second person PNG affixes, e.g.

(11) *ma (ˆa) ˆt-ḵešm-eḏ ši* (K)
NEG NR 2-enter:A-2S NEG
'Do not enter (SG)!'

(12) *ma (ˆa) ˆt-ari-ḏ ši* (K)
NEG NR 2-write:A-2S NEG
'Do not write (SG)!'

Negators *(u)la* (Imperfective) and *ur* (Perfective)

In Taghzut, Hmed, and some dialects of Seddat (especially Tidwin, but also Talarwak and Takerkurt), there is a specialized negator *la* (free variant: *ula*) used with the Imperfective. The morpheme *la* is probably a shortening of *ula*, which is a contraction

[380] The negator *ma* is also found in Ghomara, but does not have a restricted use as in Senhaja (Mourigh 2015; El Hannouche 2008: 139). Also, in Ghomara, the negator *ma* does not trigger clitic fronting. In Senhaja, the clitic fronting following *ma* is not necessarily caused by the negator itself, but by the following irrealis *a*.

[381] Cf. Ayer Tuareg that has a general negator *wər* and a prohibitive negator *ma* (Kossmann 2011).

of the negator *u* and the verb 'to be' (Perfective *lli/lla*).[382] The "Imperfective Negator" *la* is a different morpheme than found in Taghzut with the Aorist (affirmative). It could be that this morpheme has two sources: it initially could have originated as a progressive marker from the verb 'to be', and later conflated with the Arabic negator *la*, thus acquiring its restricted use as a progressive negation marker (conflation, as was proposed for the negator *ma* used exclusively with the Aorist verb forms).[383]

As discussed in Section 12.5, the negator *la* (or *ula*) does not obligatorily attract verbal clitics, and some varieties (Sahel dialect of Ketama, Seddat, Bunsar) that use the negator *u* with Imperfective verb forms also allow for the postposed clitics. In these same varieties, clitic fronting is not obligatory in prohibitives, which are based on the Imperfective verb forms, albeit the prohibitives do not employ the negator *(u)la*.

In Taghzut, alongside the usual *(u)la*, the preverbal negator with Imperfective verb forms can be also *u* or *a*. With 3MS Imperfective Negative forms, the negator *u* is not used, possibly in order to keep the 3MS Imperfective Negative and the prohibitive verb forms distinct, that would have become homophonous otherwise (cf. Section 12.5).

The Tidwin dialect of Seddat also has a specialized negator *ur* used only with the Perfective. In other dialects of Seddat, both *u* and *ur* are used in such contexts.

Negators and the 3MS subject prefix

The preverbal negators (*u, ma, ur, la*) have influence on the shape of the 3MS verb subject prefix in the varieties where the variation in the preverbal negator is found (Taghzut, Seddat, Hmed), cf. Section 3.4.1.2. Following the negator *u* (with Perfective Negative), the 3MS prefix is *d̲-* in these varieties. Following the negator *ur* that is used with Perfective Negative in parts of Seddat, the 3MS prefix is Ø:

(13)	*u*	*d̲-ek̲šem*	*š* (S/T/H)
	ur	(Ø)-*ek̲šem*	*š* (S: Tidiwn)
	NEG	3MS-enter:P	NEG
	'He didn't enter'.		

In these varieties, it is impossible to have the negator *u* followed by the 3MS subject prefix *y-* in Perfective Negative. Indeed, the marker *y* following the negator *u* must be interpreted as a fronted 1S pronominal clitic in these varieties.

[382] The imperfective *la* is also found in the Middle Atlas varieties (e.g. Ouali 2011, Boukhris 1998: 90-91, Kossmann 2017b), where it only rarely causes clitic fronting.

[383] On the negator *la* in dialectal Arabic, see Taine-Cheikh 2000. Cf. Aguadé 2004 on *la* in North Moroccan Arabic.

In the Imperfective Negative, if a general negator *u* is used in Seddat, the 3MS prefix is *d̲-*. If a specialized Imperfective negator *la* (or *ula*) is used, the 3MS prefix is *y-* (as in Taghzut and Hmed in such contexts), hence:

(14) *u* *d̲-k̲eččem* *š* (S)
ula *y-k̲eččem* *š* (S/T/H)
NEG 3MS-enter:I NEG
'He is not entering'.

Negator *i* (prohibitive)

In most Ketama dialects, in prohibitives, the preverbal negative particle is *i*, e.g.[384]

(15) *i* *k̲eššem* *ši* (K)
NEG enter:I:IMP:SG NEG
'Do not enter (SG)!'

Alternatively and far less frequently, the prohibitive has the negator *uy* in Ketama, e.g.

(16) *uy* *k̲eššem* *ši* (K)
NEG enter:I:IMP:SG NEG
'Do not enter [SG]!'

When the prohibitive verb form contains a fronted clitic, there are two preverbal negative particles: the general *u* followed by the clitic followed by the prohibitive *i*: *u* + CLITIC + *i* + VERB + *ši*. In the dialect of Lmekhzen, where *i* has a more general usage, it is repeated on both sides of the clitic (cf. Section 13.4.2):

(17) *u* *ˆs* *i* *tak* *ši* (K: most dialects)
i *ˆs* *i* *tak* *ši* (K: Lmekhzen)
NEG ˆ3S:IO NEG give:I:IMP:SG NEG
'Do not give (SG) to him/her!'

[384] This is probably originally **il*, cf. the prohibitive *il* in Warayn and *wiř* or *wi* in Tarifiyt (Mourigh & Kossmann 2020). Cf. also prohibitive *wăl* in Ghadames (Kossmann 2013b: 132). Lmekhzen and Sahel dialects lack a specialized prohibitive negator: Lmekhzen tends to use *i* in all contexts, while Sahel tends to use *u* in all contexts.

In other Senhaja varieties, there is no specialized prohibitive *i*. However, with the fronted clitic, the same construction as in Ketama is used in Seddat, and (mostly optionally) also in Taghzut:

(18)	*u*	*d*	*i*	*ḵečč̣em*	*ši* (S)
	u	*d*	*(i)*	*ḵečč̣em*	*ši* (T)
	NEG	VC	NEG	enter:I:IMP:SG	NEG
	‘Do not give (SG) enter (here)!’				

5.2.3. Combination of Preverbal Particles

The negative particle *u* can be combined with the future *(ma)š-a(ḏ)* in Zerqet and Seddat. In Hmed and Taghzut, the negative particle is optional in this case, while in Ketama, the negative particle is absent in the presence of *(ma)š-a(ḏ)*, as it is in the presence of other preverbal elements (e.g. the relative marker *a*), e.g.

(19)	*u*	*(ma)šˆaḏ*	*i-ɛḏu*	*š*	(Z)
	(u)	*(ma)šˆa*	*ḏ-eddu*	*š*	(H)
	(-)	*(ma)šˆa*	*y-eddu*	*š*	(K)
	NEG	F ˆNR	3MS-go:A	NEG	
	‘He will not go.’				

5.3. Verbal Clitics

This section discusses the verbal clitics – pronominal clitics of the DO and IO series, and the ventive clitic *d*. Pronominal objects are usually expressed by pronominal clitics (when in non-peripheral positions, i.e. when they are not dislocated).[385] These elements are syntactic clitics, as they can undergo movement (clitic fronting, discussed in Chapter 12). For the combination of clitics, see Section 12.3 and 14.2. Although usually found with verbs, pronominal DO clitics can be also found with pseudo-verbs, discussed in Section 5.3.4.

5.3.1. Direct Object Clitic Pronouns

The function of DO clitic pronouns is the direct complement of the verbal predicate. In Senhaja, DO clitics can attach to verbs or to pseudo-verbs (see Section 5.3.4). Direct

[385] The IO clitic can co-occur with an independent pronoun following the Dative preposition *i* – a phenomenon known as *double reference* or *clitic doubling*. Cf. Section 5.3.2.4.

object pronouns express person, number and gender. Like in independent pronouns (cf. Section 8.2), gender is only distinguished in the second and third person singular in most Senhaja varieties. Zerqet and Mezduy optionally distinguish the gender in the second person plural and third persona plural.

The shape of clitic pronouns depends on phonetic and syntactic context. The major distinction is between clitics placed after the verb (postverbal clitics) and those before the verb (fronted/preverbal clitics). Clitics follow the verb in unmarked contexts such as Perfective, affirmative. Clitics are fronted in specific syntactic contexts (cf. Section 12.4) such as after the irrealis particle *a(d)*, the negation marker *u*, and in contexts of relativization (usually after the relative marker *(n)a* or *i*).

This section does not discuss the shape of DO pronouns in combination with the ventive clitic *d*, for which see Section 14.2.1, and some instances of assimilation, for which see Section 14.3.

5.3.1.1. Postverbal DO clitics

1) Sub-series in postverbal DO clitics

Postverbal DO clitics can be divided into subseries depending on the shape of the verb that they follow. The existence of different series of DO pronouns is widespread in Berber. Most Berber languages know C-initial and V-initial DO clitic pronouns. The two series are in complementary distribution, but the conditions in which the series are used differ in different Berber varieties (see Brugnatelli 1993 and 1998; Kossmann 1997a; Lafkioui 2007a: 122-144). The three contexts where DO clitics occur are: *a*) following a V-final stem, b) following a C-final stem, and c) following a verb subject suffix. Series *a* can be preceded by *y* (hiatustilger), while series *b* and *c* have an optional *ay* before the basic shape of the pronoun. The series *a* and *c* are identical, except for the option to have an extra *ay* before the pronoun in *c*. The main difference between series *b* and *a/c* is in the third person. The following table shows the three sub-series of postverbal DO clitic pronouns in Ketama. Afterwards, postverbal DO pronouns in Senhaja are compared.

Ketama postverbal DO clitic pronouns

	a) V-final verb	b) C-final verb	c) after PNG sfx
1S	(y)ay	(ay)ay	(ay)ay
2MS	(y)ak̲	(ay)ak̲	(ay)ak̲
2FS	(y)ak̲em, (y)am	(ay)ak̲em, (ay)am	(ay)ak̲em, (ay)am
3MS	t̲	it̲	t̲
3FS	t	it	t
1P	(y)ana	(ay)ana	(ay)ana
2P	(y)awen	(ay)awen	(ay)awen
3P	hen	ihen	t̲en

Senhaja postverbal DO clitic pronouns

	a)	Variety	b)	Variety	c)	Variety
1S	(ya)y	all	ay	all	ay	all
2MS	(ya)k̲/k	all	ak̲/k	most	ak̲/k	most
			ik̲/ik	T	k	T
2FS	(ya)m	K/S/B/Z/M	am	K/S/B/Z/M	am	K/S/B/Z/M
	(ya)k̲em	T/(K)/S/H/B/M	akem	(K)/S/H/B/M	akem	(K)/S/H/B/M
			ikem	T	kem	T
3MS	t̲	all	it̲	all	t̲	all
3FS	t	most	it	most	t	most
	ṭ	T/H (S)	iṭ	T/H (S)	ṭ	T/H (S)
1P	(ya)naġ	S/B/H/Z	anaġ	S/B/H/Z	anaġ	S/B/H/Z
	(ya)neġ	T/S/M	aneġ	T/S/M	aneġ	T/S/M
	(ya)na	K	ana	K	ana	K
2P	(ya)wen	K/B/Z/M	awen	K/B/Z/M	awen	K/B/Z/M
	(ya)ken	T	iken	T	ken	T
	(ya)k^{w}en	S/H	ak^{w}en	S/H	ak^{w}en	S/H
	(ya)kun	B (M)[386]	akun	B (M)	akun	B (M)
2FP	went	Z	awent	Z	awent	Z
	wend	M	awend	M	awend	M
3P	t̲en	most	it̲en	most	t̲en	all
	hen	K	ihen	K		
3FP	t̲ent	Z	it̲ent	Z	t̲ent	Z
	t̲end	M	it̲end	M	t̲end	M

[386] In Mezduy, *(ya)kun* is a second (rare) variant alongside *(ya)wen*. In Bunsar, there are dialectal differences: *(ya)wen* is found in Iattaren, and *(ya)kun* in Tamadit.

The *k* and *ḵ* in the 2MS:DO pronoun are in free variation; *ḵ* is generally more widely used than *k*, while *k* may be preferred in certain dialects (see the following table) or by certain speakers. The following Table lists the forms per variety.

Postverbal DO clitic pronouns in different Senhaja varieties

	Ketama	**Taghzut**	**Seddat**	**Hmed**	**Bunsar/ Zerqet**	**Mezduy**
1S	(a)y	(a)y	(a)y	(a)y	(a)y	(a)y
2MS	(a)ḵ	(i)k	(a)ḵ, (a)k	(a)k	(a)ḵ	(a)k
2FS	(a)(ḵe)m	(i)kem	(a)(ḵe)m	(a)kem	(a)m	(a)(ḵe)m
3MS	(i)ṯ	(i)ṯ	(i)ṯ	(i)ṯ	(i)ṯ	(i)ṯ
3FS	(i)t	(i)ṭ	(i)t, (i)ṭ	(i)ṭ	(i)t	(i)t
1P	(a)na	(a)naġ, (a)neġ	(a)naġ, (a)neġ	(a)naġ	(a)naġ	(a)neġ
2P	(a)wen	(i)ken	(a)k^{w}en	(a)k^{w}en	(a)wen ((a)wem) (a)kun (B)	(a)wen, (a)wem ((a)kun), akum
2FP					(a)went (Z)	((a)wend, (a)kund) akunt
3P	(i)hen, ṯen	(i)ṯen	(i)ṯen	(i)ṯen	(i)ṯen	(i)ṯen
3FP					(i)ṯent (Z)	((i)ṯend) (rare)

Series *a* (after the vowel of the verb stem)

After the vowel of the verb stem, e.g. after *i-ẓṛa* 'he saw', on the surface, we find clitics starting in consonants in most Senhaja varieties, e.g.

(20) *i-ẓṛa* =*ḵ* (K)
3MS-see:P =2MS:DO
'He saw you (MS)'.

In some Senhaja varieties, clitics of this series have two forms: a long one starting in *ya-* and a short one consisting of a single consonant, e.g.[387]

[387] The long forms (with *ya-*) are more frequent in Beni Aisi dialect of Ketama, while the short forms are frequent in other Ketama villages and in the rest of Senhaja, including Hmed.

(21) *i-ẓṛa* = *(ya)k̲* (K)
3MS-see:P = 2MS:DO
'He saw you (MS)'.

The initial *y* in such examples can be regarded as a hiatustilger, and in this case, the clitics are underlyingly V-initial *(iẓṛa-y-ak̲)*, except for the third person, as in series *b* and *c*:[388]

(22) *i-ẓṛa* = *yak̲* (K)
3MS-see:P = 2MS:DO
'He saw you (MS)'.

Series *b* (after verb forms that end in a stem consonant)

After verb forms that end in a stem consonant , e.g. after *i-ssen* 'he knows', the V-initial clitics (*a*-initial or *i*-initial) are used, including the third person clitics. Again, there are short and long forms, as there is an optional *ay* before the basic shape of the pronoun. The initial vowel of the clitic differs depending on the variety. In most varieties (including Ketama), the initial vowel is *a* for most persons, and *i* only in the third person, e.g.

(23) *i-ssn* = *ak̲* (K)
3MS-know:P = 2MS:DO
'He knows you (MS).'

(24) *i-ssn* = *iṭ* (K)
3MS-know:P = 3MS:DO
'He knows him.'

This is different in Taghzut, where clitics in this series have the vowel *a-* only in first person, while other clitics (the second and third person) have the vowel *i-*.[389] Most likely, the *a*-initial first and second person DO clitics that are found in most Senhaja varieties are a result of analogy with the IO clitics, while the *i*-initial clitics in the third person preserve the original vowel. The analogy may not have taken place in the third person, because for that person, the forms of the clitics in the DO and in the IO series are different.

[388] Indeed, clitics with the initial vowel occur everywhere if not preceded by a vowel.

[389] Taghzut has 1S *ay*, 1P *aneġ* vs. 2MS *ik*, 2FS *ikm*, 3MS *iṭ*, 3FS *iṭ*, 2P *iken*, and 3P *iṭen* in this series.

Series *c* (following verb subject suffixes)

When following the verb subject suffix (e.g. following *ẓṛa-n* 'they saw'), the paradigm in the majority of Senhaja is like in series *a*: most clitics are V-initial, except for the third person. In Taghzut, clitics of this series are V-initial for the first person, and C-initial for the second and third person.

2) Paradigms with postverbal DO clitics

In this section, we present the paradigms with the postverbal clitic pronouns in Senhaja. The following table shows clitics of the series *a* following a V-final verb form *i-ẓṛa* (pan-Senhaja) 'he saw'.

Postverbal DO clitics with the verb *iẓṛa* 'he saw' (series a)

	Forms	**Variety**
1S	i-ẓṛa = (ya)y	all
2MS	i-ẓṛa = (ya)ḵ/k	all
2FS	i-ẓṛa = (ya)m i-ẓṛa = ḵem/kem	K/S/B/Z/M (K)/T/S/H/M
3MS	i-ẓṛa = ṯ	all
3FS	i-ẓṛa = t i-ẓṛa = ṯ	most T/H (S)
1P	i-ẓṛa = (ya)naġ i-ẓṛa = (ya)neġ i-ẓṛa = na	most T/S/M K
2P	i-ẓṛa = (ya)wen i-ẓṛa = ken i-ẓṛa = k^{w}en i-ẓṛa = (ya)kun i-ẓṛa = (ya)kum	K/B/Z/M T S/H B (M)
2FP	i-ẓṛa = went i-ẓṛa = wend (i-ẓṛa = kund/kunt/kumt)	Z M
3P	i-ẓṛa = ṯen i-ẓṛa = hen	most K
3FP	i-ẓṛa = ṯent (i-ẓṛa = ṯend)	Z, M (M)

The following table shows clitics of series *b* following a C-final verb form *i-ssen* (pan-Senhaja) ‘he knows’.

Postverbal DO clitics with the verb *issen* ‘he knows’ (series b)

	Forms	**Variety**
1S	i-ssn = ay	all
2MS	i-ssn = ak̲; i-ssn = ik̲	most; T
2FS	i-ssn = am; i-ssn = akem; i-ssn = ikem	K/S/B/Z/M; (K)/S/H/M; T
3MS	i-ssn = it̲	all
3FS	i-ssn = it; i-ssn = iṭ	most; T/H (S)
1P	i-ssn = anaġ; i-ssn = aneġ; i-ssn = ana	most; T/S/M; K
2P	i-ssn = awen; i-ssn = iken; i-ssn-ak^{w}en; i-ssn = akun/akum	K/B/Z/M; T; S/H; B (M)
2FP	i-ssn = awent; i-ssn = awend (ak̲und, akumt)	Z; M
3P	i-ssn = it̲en; i-ssn = ihen	most; K
3FP	i-ssn = it̲ent; (i-ssn = it̲end)	Z; (M)

The following table shows clitics of series *c* following a verb form with a PNG suffix: *ẓ̣ra-n* (pan-Senhaja) ‘they saw’ (*-n* marks the 3P subject).

Postverbal DO clitics with the verb *ẓ̣ra-n* ‘they saw’ (series c)

	Forms	**Variety**
1S	ẓ̣ra-n = ay	all
2MS	ẓ̣ra-n = ak̲; zra-n = ek	most; T
2FS	ẓ̣ra-n = am; ẓ̣ra-n = akem; zra-n = kem	K/S/B/Z/M; (K)/S/H/M; T
3MS	ẓ̣ra-n = t̲	all
3FS	ẓ̣ra-n = t; zra-n = ṭ	most; T/H (S)
1P	zra-n = anaġ; ẓ̣ra-n = aneġ; ẓ̣ra-n = ana	most; T/S/M; K
2P	ẓ̣ra-n = awen; zra-n = ken; ẓ̣ra-n = ak^{w}en; ẓ̣ra-n = akun/akum	K/B/Z/M; T S/H; B (M)
2FP	ẓ̣ra-n = awent; ẓ̣ra-n = awend (akund, akumt)	Z; M
3P	ẓ̣ra-n = t̲en	all
3FP	ẓ̣ra-n = t̲ent (ẓ̣ra-n = t̲end)	Z (M)

On morphophonology of the verbal complex and on the issue of schwa in the 3P subject suffix *-en* in combination with V-initial clitics, see Section 14.3.1.1.

3) Variation in Senhaja postverbal DO clitics

Regarding variation of postverbal DO clitics in Senhaja, the following observations can be made:

In series *a*, clitics can be analyzed as underlyingly V-initial (e.g. 2MS *a*$\underline{k}$), but on the surface are realized as a single consonant in most Senhaja varieties (e.g. 2MS $\underline{k}$). Longer forms such as e.g. 2MS *ya*$\underline{k}$ with the initial hiatustilger point to the fact that the clitics are underlyingly V-initial.

For the third person singular clitics, in most Senhaja varieties, 3MS $\underline{t}$ is distinguished from the 3FS *t* by means of spirantization. In Taghzut, Hmed, and parts of Seddat, 3MS $\underline{t}$ is distinguished from the 3FS $\underline{t}$ (an affricate).

In 1P, Ketama and Taghzut outside Lqela lack the final -*ġ* unless the clitic is followed by the ventive or a postverbal negator. The -*ġ* is preserved in the rest of Senhaja. There is variation in the vowel of 1P clitic. Most Senhaja varieties (including Ketama, Hmed, majority of Zerqet) have *a*, while Taghzut and Wersan dialect of Zerqet have *e* (*neġ*). Both variants are found in Seddat.

There are different forms of the 2P:DO clitic: *wen* (Ketama, Bunsar, Zerqet), *ken* (Taghzut), *k*^{w}*en* (Seddat/Hmed). There also varieties that have different forms, but one is normally more frequent that the other (e.g. *wen* is more frequent in Mezduy than *kun*). In parts of Zerqet and Mezduy, the variant *wem* is also found.[390] Zerqet and Mezduy optionally mark 2FP: Zerqet/Mezduy *went,* Mezduy *wend* (<*went*) or $\underline{k}$*und* (<*kunt*).

For the 3P, the underlying form is $\underline{t}$*en*, which becomes *hen* in Ketama and in Taghzut variety outside Lqela when in intervocalic position (series *a* and *b*). Zerqet and Mezduy optionally mark 3FP.

In series *c* (after the PNG suffix), V-initial clitics are used for the first person (1S and 1P), and C-initial clitics for the third person (3MS, 3FS, and 3P). The difference is in the second person: whereas most Senhaja varieties have V-initial clitics, Taghzut has C-initial clitics.

5.3.1.2. Preverbal DO clitics

1) Usage and forms of preverbal DO clitics

Clitic fronting is found in contexts such as irrealis and negation (cf. Section 12.4). With the exception of the 1S clitic in parts of Senhaja (Ketama, Taghzut, and Zerqet),

[390] According to Kossmann (2006a), the 2MP:DO pronoun was originally **kUm* or **kUn* (vs. IO **wem* or **wen*), where "U" stands for a rounded element, which could either be a labiovelarization or the full vowel *u*. In other words, it is not known if labialization is original, and whether the final nasal was **n* or **m* (or whether originally there was a difference with IO pronouns).

the shape of the verb form does not influence the form of the clitic, so there is only one series of preverbal clitics. The following table compares preverbal DO clitic pronouns in different Senhaja varieties.

Preverbal DO clitics

	Ketama	**Taghzut**	**Seddat**	**Hmed**	**Bunsar**	**Zerqet**	**Mezduy**
1S	y(ṯ)	y(ḏ)	y	y	y	y(ḏ)	y
2MS	ḵ, k	k	k	k	ḵ	ḵ	k
2FS	(ḵe)m, (kem)	kem	kem	kem	m	m	(ke)m
3MS	ṯ, h	t	ṯ	t	ṯ	ṯ	ṯ
3FS	t, h	ṭ	t, ṭ	ṭ	t	t	t
1P	hen	ġen	ġen	ġen	ġen	ġen	(ġe)n
2P	wen	ken	kʷen	kʷen	wen, kʷen[391]	wen (wem)	wen, wem, kun
2FP						went	went, wend, kund
3P	hen	ten	ṯen	ten, hen	(ṯe)n	ṯen	ṯen (n)
3FP						ṯent	ṯend

Regarding the variation in some varieties, the following observations can be made:

- 1S *y/yṯ* in Ketama: the form *yṯ* is limited to specific contexts (e.g. with 3MS verb forms, cf. below);
- 1S *y/yḏ* in Taghzut and parts of Zerqet: as in Ketama, the form *yḏ* is limited to specific contexts. In the Ikherruden dialect of Zerqet, in these specific contexts, the form *yḏ* is the only accepted variant. In the Bunjel dialect, *yḏ* is found alongside the regular *y* in such contexts.
- 3P *ten/hen* in Hmed: the choice depends on the dialect: *ten* is found in Imugzan, and *hen* in Tafurnut.
- 3P *ṯen/n* in Bunsar and Mezduy: in Bunsar, both *ṯen* and *n* occur in the same contexts. In Mezduy, *ṯen* is usually reduced to *n* in specific contexts, e.g. when followed by the ventive *d*, or when followed by the verb subject prefix *t* (realized as *d* in this case) of 2S/3FS/2P. In such contexts, the fronted 3P clitic has the same form as the 1P clitic (as in Ketama).

[391] The choice depends on the dialect: e.g. Iattaren *wen*, Tamadit *kʷen*.

The following table shows a paradigm with preverbal clitic pronouns in different Senhaja varieties. Clitics follow the future marker *š-a* (pan-Senhaja) and precede a 3MS form of the verb *ẓeṛ* 'to see' in the Aorist stem ('he will see me, you', etc.).[392] The irrealis marker in this variety is *a* (that is also found in Senhaja in certain contexts and that is part of the future marker *š-a*).

Preverbal DO clitics in Senhaja with the verb 'he will see'

	Senhaja (Mezduy *i-ẓaṛ*)	**Variety**
1S	š-a y = i-ẓeṛ, ša yṯ = i-ẓeṛ š-a yḏ = i-zer	S/H/B/Z/M, K T (Z)
2MS	š-a ḳ = i-ẓeṛ	all
2FS	š-a m = i-ẓeṛ, ša km = i-ẓeṛ	K/B/Z/M, (K/)T/S/H/M
3MS	š-a ṯ = i-ẓeṛ, ša t = i-zer š-a h = i-ẓeṛ	S/B/Z/M, T/H K
3FS	š-a t = i-ẓeṛ, ša ṭ = i-zer	K/S/B/Z/M, T/H (S)
1P	š-a ġn = i-zer, ša hn = i-ẓeṛ š-a (ġ)n = i-ẓaṛ	most, K M
2P	š-a wn = i-ẓeṛ, ša kn = i-ẓeṛ š-a kʷn = i-ẓeṛ	K/B/Z/M, T H/B/S
2FP	š-a went = i-ẓeṛ, š-a wend = i-ẓaṛ (š-a kund = i-ẓaṛ)	Z, M (M)
3P	š-a ṯn = i-ẓeṛ, ša tn = i-zer š-a hn = i-ẓeṛ, ša (ṯ)n = i-ẓeṛ	S/Z/M, T/H K/H, B (M)
3FP	š-a ṯent = i-ẓeṛ (š-a ṯend = i-ẓaṛ)	M/Z (M)

2) Postverbal vs. preverbal DO clitics in Senhaja

Postverbal clitics have C-initial and V-initial forms. Preverbal clitics usually follow a preverbal particle (e.g. irrealis *a*, negation *u*) or a relative marker *(n)a* or *i*. In this case, it is not clear whether their form is underlyingly C- or V-initial.[393] If we do not take the initial vowel into account, the following observations can be made regarding the difference between the postverbal and the preverbal series in Senhaja:

[392] In Taghzut, alongside *š-a*, the future marker *la* is found. Also, in this variety, alongside *ẓeṛ* 'to see', the verb *maher* is used in the same meaning. In Mezduy, the verb 'to see' is realized as *ẓaṛ*. This difference is ignored in the table when the same form of the pronoun occurs outside Mezduy.

[393] In those rare cases where the preverbal element does not end in the vowel, which is possible in Zerqet with some conjunctions, the fronted DO clitics are still V-initial, e.g. (Z) *amis aḳ = i-ẓṛa* 'When he saw you (MS).'

- in parts of Senhaja (Ketama, Taghzut, some dialects of Zerqet), the preverbal 1S clitic has two forms, depending on the following verb form. There is either the regular *y* (as in the postverbal position), used in most cases, or the unusual *yṯ* (Ketama)*/yḏ* (Taghzut/Zerqet), used with 3MS (and 3P) verb forms.
- the 1P clitic has a different form when in preverbal position in all Senhaja varieties. In the majority of Senhaja, we find preverbal *ġen* vs. postverbal *nag/neġ* (metathesis), while in Ketama, we find preverbal *hen* vs. postverbal *na*. The preverbal 1P *hen* becomes homophonous with the 3P clitic in Ketama. In Mezduy, the preverbal *ġen* can be reduced to *n*, and then has the same form as the reduced form of the 3P:DO *ṯen* that is used in some specific contexts (cf. below for more details).
- the remaining clitics (2MS, 2FS, 3MS, 3FS, 2P, and 3P) normally have the same form whether in postverbal or in preverbal position. In Ketama, the third person clitics have different realizations of *ṯ/t* (> *h*) depending on the phonetic environment, but the underlying forms are the same: 3MS *ṯ*, 3FS *t*, and 3P *ṯen*. In the preverbal position, 3P is realized as *hen*. This variant is also found in Hmed, where *ṯ* is usually preserved.

3) Senhaja inter-dialectal variation in preverbal DO clitics

Regarding variation of preverbal DO clitics in Senhaja, the following observations can be made:

- 1S clitic *y* is found in all Senhaja varieties. Three varieties (Ketama, Taghzut, and parts of Zerqet) also have the unusual forms of the fronted 1S clitic;
- 2MS is *k/ḳ* in all Senhaja;
- 2FS *kem/ḳem* is found in all varieties. In Ketama, Bunsar, and Zerqet, it is usually reduced to *m*;
- 3MS is (underlyingly) *ṯ* in most varieties, and is distinguished from 3FS *t* by spirantization; Taghzut and Hmed have *t* in preverbal position (vs. postverbal *ṯ*), which is distinguished from 3FS *ṯ*;
- 1P is *ġen* (metathesized form of postverbal *neġ*) in the majority of Senhaja. Ketama has the unusual preverbal *hen*, coinciding with 3P:DO. In Mezduy, the preverbal *ġen* can be reduced to *n*, partly coinciding with 3P:DO in specific contexts;
- 2P is mostly *ken* or *wen* (Seddat/Hmed *kʷen*, Bunjel dialect of Zerqet and Mezduy also *wem*); some varieties allow for variation, while others give preference to one form over the other: *wen* is frequent in Ketama, Bunsar, and Zerqet, *ken* is frequent in Taghzut; *kun* is found alongside *wen* in Mezduy. In Zerqet and Mezduy, 2FP can be optionally marked;

- 3P is underlyingly *ṯen* in all Senhaja varieties. The clitic is realized as *ten* in preverbal position in Taghzut and Hmed. In Ketama, the postverbal clitic can become *hen*, while the preverbal clitic is always *hen*; the preverbal *hen* is also found in parts of Hmed (Tafurnut).[394] In Mezduy, in specific contexts, *ṯen* can be reduced to *n*. In Zerqet and Mezduy, 3FP can optionally be marked.

5.3.1.3. Special forms in Senhaja DO clitic pronouns

Some forms in Senhaja DO clitic pronouns are unusual and require some explanation.

The preverbal 1S *yṯ* and *yḏ*

The fronted 1S has an unusual form (Ketama *yṯ*, Taghzut and parts of Zerqet *yḏ*) with 3MS and 3P verb forms, as well as in relative forms. In Zerqet its use with 3P verb forms is possible, but not obligatory.

In Ketama, the final *-ṯ* of the clitic is probably the result of the reinterpretation of the verbal subject prefix *ṯ-* (marking 2S, 3FS, and 2P) as part of the clitic. This generalization could have been facilitated by the wish to avoid ambiguity of morpheme *y* which could be interpreted either as the 1S preverbal clitic or as 3MS subject prefix. Compare (Ketama):

(25) *š-a* *yṯ=* *i-ẓeṛ*
FT-NR 1S:DO=3MS-see:A
'He will see me.'

(26) *š-a* *y-ẓeṛ*
FT-NR 3MS-see:A
'He will see.'

In the majority of Senhaja the fronted 1S clitic is realized as *y*, and it is distinguished from the 3MS verb form without a clitic due to the presence of *ḏ* (that can be viewed as a 3MS verb subject prefix synchronically, see Section 3.4.1.2), e.g. Seddat/Hmed:

(27) *š-a* *y=* *i-ẓeṛ*
FT-NR 1S:DO=3MS-see:A
'He will see me.'

[394] In Hmed variety, the realization of the 3P clitic depends on the dialect rather than on the phonological context: *ten* is found e.g. in Imugzan, and *hen* e.g. in Tafurnut.

(28) *š-a* *ḏ-ẓeṛ*
FT-NR 3MS-see:A
'He will see.'

Outside Ketama, preverbal 1S *yṯ* with 3MS and 3P verb forms is also found in the Amtiqan dialect of Ghomara (Mourigh 2015), while in the dialect of Iaraben, the form is *ṯ* (which is probably a development from *yṯ*).[395] The form *yṯ* in Ketama and Ghomara must be a shared innovation.

In Taghzut and parts of Zerqet (Ikherruden), the form of the preverbal 1S with 3MS and 3P verb forms is *yḏ*. This could be an amalgam of the original *y* and *ḏ* (originally part of the irrealis particle *aḏ*) that became part of the verb when there is a fronted 1S clitic. It is not entirely clear how this *ḏ* evolved to be part of the fronted 1S clitic. Compare:

	Without a 1S:DO	**With a fronted 1S:DO**
3MS	*š-aḏ* *i-ẓeṛ* (Z) *š-a* *ḏ-mmaher* (T) FT-NR 3MS-see:A 'He will see.'	*š-a* *yḏ=* *i-ẓeṛ* (Z) *š-a* *yḏ=* *i-mmaher* (T) FT-NR 1S:DO=3MS-see:A 'He will see me.'
3P	*š-a(ḏ)* *ẓṛ-en* (Z) *š-a* *mmahr-en* (T) FT-NR see:A-3P 'They will see.'	*š-a* *y(ḏ)=* *ẓṛ-en* (Z) *š-a* *yḏ=* *emmahr-en* (T) FT-NR 1S:DO= see:A-3P 'They will see me.'

The fronted clitic *yḏ* cannot be a combination of *y* with a ventive clitic *d*. First of all, the ventive is not spirantized in such contexts. Second, the form *y* + *d* (1S:DO + ventive) also occurs, and contrasts with *yḏ* (fronted 1S:DO) in both meaning and form (cf. Section 5.3.3 on the ventive).

3MS, 3FS, and 3P

In most Senhaja varieties, except for Taghzut, Hmed, and parts of Seddat, the 3MS:DO clitic is distinguished from the 3FS by means of spirantization in both postverbal and preverbal positions: 3MS *ṯ* vs. 3FS *t*. Originally, 3MS was *t* and 3FS was *tet*.[396] Later, the 3FS *tet* became *tt* which led to a plain, unspirantized *t*. In Taghzut, Hmed, and

[395] In the dialect of Iaraben, preverbal 1S clitic *y*~*ṯ* is homophonous in most contexts with the preverbal 3MS clitic *y*~*ṯ*.

[396] The form *tet* still occurs in some Berber varieties, such as Tuareg (Kossmann 2011), Zenaga (Taine-Cheikh 2004: 183), and some Tarifit varieties (Lafkioui 2007a).

parts of Seddat, *tt* developed into the affricate *ṯ*. Thus, the gender of the third person singular DO clitic in Senhaja is distinguished either by spirantization (3MS *t̲* vs. 3FS *t*) or spirantization and/or affrication (3MS postverbal *t̲*, preverbal *t* vs. 3FS *ṯ*). For a combination of the DO clitics and the ventive, see Section 14.2.1.

For the 3P clitic, the majority of Senhaja has *ṯen* (fronted and postverbal), while Taghzut and Hmed have *ten* in the fronted position. The form *ṯen* is also found in Ketama in specific contexts, while the most recurrent form is *hen*. The original *t̲* is often realized as *h* in the 3P clitic because it is often found in an intervocalic position. Thus, in the postverbal series *a*, it follows the vowel of the verb stem, e.g. (Ketama)

(29) *i-ẓṛa* =*hen*
3MS-see:P =3P:DO
'He saw them.'

In series *b*, when the verb stem ends in a consonant, the form of the clitic itself is V-initial, e.g. (Ketama)

(30) *i-ssn* =*ihen*
3MS-know:P =3P:DO
'He knows them.'

The initial *t̲* is found in series *c* (after the PNG suffix of the verb), because it is not an intervocalic position, e.g. (Ketama)

(31) *ẓṛa-n* =*ṯen*
see:P-3P =3P:DO
'They saw them.'

In the preverbal position, the clitic normally follows some preverbal element ending in a vowel, and is realized as *hen* in Ketama, coinciding with the fronted 1P clitic.

In Bunsar, the preverbal 3P:DO clitic can be reduced to *n* (found alongside *ṯen*):

(32) *š-a* *(t̲)n*= *i-ẓeṛ*
FT-NR 3P:DO=3MS-see:A
'He will see them.'

In Mezduy, the preverbal 3P:DO clitic can be reduced to *n* in specific contexts: normally, when followed by a verb form that starts with the prefix *ṯ-* (marking 2S, 3FS, and 2P), which is realized as *d* following the clitic. In this case, in Mezduy, the 3P:DO clitic can be homophonous with the reduced 1P:DO clitic (*ġen* > *n*), e.g.

(33) *š-a nˆd-ẓaṛ* 'She will see them/us.'
<š-a ġen ˆd-ẓaṛ
FT-NR 1P:DO ˆ3FS-see:A
'She will see us.'
<š-a ṯen ˆd-ẓaṛ
FT-NR 3P:DO ˆ3FS-see:A
'She will see them.'

The 3P:DO clitic in Mezduy can also be reduced if followed by the ventive *d*. Ketama, Bunsar, and Mezduy are not the only Berber varieties that lack the *t/ṯ* in (some forms of) the third person clitics. Weakening or losing the *t* in third person pronouns (especially in the 3P clitic) is found in other varieties (see e.g. Brugnatelli 1993; Kossmann 1997a).

1P postverbal *na*

In Ketama and in Taghzut variety outside Lqela, the postverbal 1P clitic is *na*. This developed from *neġ* (*neġ* > *naġ* > *na*).[397] The final *-ġ* is there when the clitic is followed by the ventive or a postverbal negator. The same is observed with the 1S subject suffix for C-final verbs (originally *-eġ*), which is realized as *-a*, but which becomes *-aġ* when followed by the ventive or a postverbal negator.

1P preverbal *ġen, hen, n*

In most Senhaja varieties, the preverbal 1P clitic is *ġen* (Ketama *hen*, Mezduy *ġen*~*n*). The clitic *ġen* is a metathesized form of the postverbal *neġ*.[398] Collins (1981 and 1982) described this phenomenon for Tunisian Berber varieties, calling it "symétrie par métathèse". On metathesis in pronominal clitics in other Berber varieties, see Brugnatelli (1993 and 2012). In Berber languages, metathesis in preverbal pronominal clitics is found in 1P (*neġ* > *ġen*) and also (less frequently) in 3P pronoun (*ten* > *nt*).[399]

[397] Outside Senhaja, the loss of final *-ġ* in 1P clitic pronoun is also found e.g. in Ouargla (Delheure 1989) and Beni Salah (Laoust 1912: 49).
[398] The metathesis of 1P clitic pronoun in Senhaja has been noticed by Renisio (1932: 97).
[399] According to Brugnatelli 2012, metathesis in 3P pronoun is found in Tunisian Tamezrett, Jerba (only in old texts), and in Zwara (alongside the regular *ten*, depending on the context), while metathesis in 1P is

According to Lafkioui (2007a: 125), in Tarifiyt, the preverbal 1P has a facultative metathesis, so that *(d̲)aġen, (d̲)aḫen* are found next to the forms without metathesis: *(d̲)aneġ, (d̲)aġ, (d̲)aneḫ, (d̲)aḫ*. In Ghomara, the preverbal 1P clitic is *ġen*, just as in Senhaja, while the postverbal clitic is realized as *naḫ* (Mourigh 2015). As metathesis in preverbal pronouns (at least for 1P) is found in quite a number of Berber varieties, and the geographical distribution is rather vast, it is not likely to be a shared innovation. The preverbal *ġen* might have been the original form, while *neġ* would have been a change by analogy.

In Ketama, the preverbal form of the clitic is *hen*. The lack of *ġ* could be due to the fact that the postverbal form lost the final *-ġ*, so that *ġ* ceased to be a 1P marker, and only *n* remained. However, in Mezduy, the fronted 1P can also be realized as *n* (alongside *ġen*), while Mezduy preserves *ġ* in the postverbal *neġ*. It is thus possible that Ketama had *n* as the fronted 1P clitic (as Mezduy), merging with one of the allomorphs of the 3P clitic, which has *n* and *hen*. Later, *hen* was added as a 1P allomorph (by analogy with the 3P) and replaced *n*.

5.3.1.4. DO clitic pronouns in Senhaja, Ghomara, and Tarifiyt

The following table compares DO clitic pronouns in Senhaja and Ghomara (Mourigh 2015).

Senhaja and Ghomara DO clitic pronouns

	Senhaja		**Ghomara**	
	Postverbal	**Preverbal**	**Postverbal**	**Preverbal**
1S	(a)y	y (yṯ, yḏ)	ay	y, ṯ, yṯ
2MS	(a)k̲, (a)k, (i)k̲	k̲, k	ak̲	k̲
2FS	(a)k̲em, (a)m, (i)kem	(k̲e)m, kem	am	m
3MS	(i)ṯ	ṯ, h, t	aṯ; t	y, ṯ
3FS	(i)t, iṭ	t, h, ṭ	at; tet/teṯ (t)	t
1P	(a)na(ġ), (a)neġ	ġen, hen	anaḫ	ġen
2P	(a)wen, (a)k^{w}en, (a)kun, (i)ken	wen, k^{w}en, kun, ken	awen	wen
3P	(i)ṯen, (i)hen	ṯen, ten, hen	ahen; ten	n

found in Tunisian Berber varieties (Tamezret and Guellala), Mzab, Ouargla, Gourara, Aurès, Chenoua, Eastern Kabyle, and Tasahlit.

In Ghomara, the initial vowel of DO clitics is always *a-*, while in Senhaja, it is *i-* for the third person pronouns (and in Taghzut, also for the second person pronouns). If we do not take the initial vowel of the clitics into the account, the following observations regarding DO pronouns in Senhaja vs. Ghomara can be made:

- 1S postverbal is *(a)y* in both varieties;
- Both in Senhaja and Ghomara, there are two forms of 1S preverbal clitic: the regular *y* when followed by 2S, 3FS, and 2P verb forms, and the unusual *yṯ* (in Ketama and in the Amtiqan dialect of Ghomara) , *ṯ* (the Iaraben dialect of Ghomara), *yḏ* (Taghzut and parts of Zerqet) when followed by 3MS (and 3P) verb forms;
- 2MS *(a)ḵ* is shared by Senhaja and Ghomara, although spirantization in Senhaja is optional;
- 2FS *(a)m* is also shared by Senhaja and Ghomara; however, in Senhaja, *(a)ḵem* and *(a)kem* also occur;
- 3MS is underlyingly *ṯ*, which can turn into *h* in Ketama and Ghomara, the initial vowel in sub-series *b* is different: Senhaja *i-* vs. Ghomara *a-*;
- For 3MS in the preverbal position, Senhaja has *ṯ/t* (Taghzut/Hmed), *h* (Ketama) vs. Ghomara *y/ṯ*.[400]
- 3FS is underlyingly *t*, which can turn into *h* in Ketama and Ghomara; again, the initial vowel in series *b* is *i-* in Senhaja vs. *a-* in Ghomara; in Ghomara, there is also *tet, teṯ*;
- the 1P clitic pronoun, when postverbal, is *(a)naġ/neġ/na* in Senhaja, and *(a)naḫ* in Ghomara. The final *-ġ* is lost in Ketama (unless the ventive follows the clitic) and is devoiced in Ghomara;
- the 1P clitic pronoun, when preverbal, is *ġen/hen* in Senhaja (in Ketama, the preverbal *hen* is homophonous with 3P) and *ġen* in Ghomara.
- 2P *(a)wen* is shared by parts of Senhaja and Ghomara, although the variants *(a)kun, (a)kʷen, (i)ken* are also found in Senhaja;
- 3P is underlyingly *ṯen* in Senhaja and *ten* in Ghomara. In both Ghomara and Senhaja (Ketama and Hmed), the consonant can turn into *h*. The initial vowel in series *b* is different: Senhaja *i-* vs. Ghomara *a-*. In the preverbal series, Ghomara has *n*. This variant only rarely occurs in Ketama in some idiolects.

In Senhaja, postverbal and preverbal series differ only in the first person. In Ghomara, the difference is found also in the third person.

[400] In the Iaraben Ghomara, 3MS and 1S merge, except for when they are followed by a 3P verb form.

The following table compares DO clitic pronouns in Senhaja, Ghomara (Mourigh 2015), and Bujay Tarifiyt.[401]

Senhaja, Ghomara, and Bujay DO clitic pronouns

	Senhaja	**Ghomara**	**Bujay**
1S	(a)y, preverbal (a)y(t̲) (K), (a)y(d̲) (T/Z)	(a)y; *preverbal* y; t̲; yt̲	(a)y *preverbal* (d̲a)y
2MS	(a)k̲ (k), (i)k (T)	(a)k̲	(i)š
2FS	(a)k̲em, (a)kem, (a)m, (i)km (T)	(a)m	(i)šem
3MS	(i)t̲; t (T/H, *preverbal*)	(a)t̲; t *preverbal* y; t̲	(i)t̲
3FS	(i)t, (i)ṭ (T/H)	(a)t, tet, teṭ (t)	(i)t(t)
1P	(a)na, (a)naġ, (a)neġ; *preverbal* ġen, hen (K)	(a)naẖ *preverbal* ġen	(a)neġ, *preverbal* d̲an
2P	(a)wen; ken (T/H/Z), iken (T), (a)kun (H/Z)	(a)wen	(i)šk̲um
2FP	(a)went, k/k̲ent, k/k̲unt (Z) (a)k̲um(t), k̲ent, k̲end (M)	–	(i)šk̲end
3P	(i)t̲en, (i)hen (K)	(a)hen, ten *preverbal*: n	(i)t̲en
3FP	t̲ent (Z/M), t̲end (M)	–	(i)t̲end, *preverbal* (t̲e)nd

5.3.2. Indirect Object Clitic Pronouns

5.3.2.1. The Use and the Forms

Besides the Direct Object (DO) series, pronominal clitics also include an Indirect Object (IO) series. Just as it is the case with the DO, IO is normally expressed by a pronominal clitic if the object is pronominal (when it is not dislocated).[402] Most Senhaja varieties distinguish gender in IO clitic pronouns only in the second person singular, while the easternmost varieties (Zerqet and Mezduy) optionally mark 2FP and 3FP. Different from the independent and DO clitic pronouns, IO clitic pronouns do not distinguish gender in the third person singular.

[401] For forms of the DO clitic pronouns in different Tarifit varieties, see Lafkioui 2007a.

[402] The function of IO clitic pronouns is an indirect complement of the verbal predicate. It is also possible to have the Dative preposition *i* followed by an independent pronoun. On the Dative doubling, see 5.3.2.4.

Morphologically, the IO clitic pronouns and pronominal suffixes (Section 8.3) belong together: the IO clitic pronouns have the shape *a* + pronominal suffix.[403] Synchronically, *a* constitutes an IO marker. If IO pronouns are analyzed as the preposition *a* (Dative) with pronominal suffixes, there are no true IO clitics in Berber. The pronominal elements in the IO clitics are the same as the elements found with prepositions. However, syntactically, IO clitics behave different from prepositions with pronominal suffixes. The IO pronoun is normally the first member of the clitic complex, while prepositions with pronominal suffixes follow the clitic complex (*compare* Kossmann 2012: 71; for the clitic complex in Senhaja, see Chapter 12). The following table shows the IO clitics in Senhaja.

IO clitic pronouns in Senhaja

	Postverbal	**Variety**	**Preverbal**	**Variety**
1S	(a)y	all	(a)y; (a)yṯ; (a)yḏ	all; K; T/Z
2MS	(a)k, aḵ	all	(a)k, (a)ḵ	all
2FS	(a)m	all	(a)m	all
3S	(a)s	all	(a)s	all
1P	(a)naġ; (a)neġ; (a)na	most; T/S/M; K	(a)ġen; (a)hen	most; K
2P	(a)wen ((a)wem, (a)ḵun)	all (Z/M) (M)	(a)wen	all
2FP	(a)went ((a)wend, (a)kund)	Z/M (M)	(a)went ((a)wend, (a)kund)	Z/M (M)
3P	(a)sen	all	(a)sen	
3FP	(a)sent ((a)send)	Z/M (M)	(a)sent ((a)send)	Z/M (M)

Just like the DO pronominal clitics, IO clitics follow the verb in many contexts, but are preverbal in special contexts such as irrealis and negation. In most Senhaja varieties, morphological differences between the postverbal and the preverbal series are limited to the 1P:

- postverbal *anaġ* (most Snh.), *aneġ* (T/S/M)*, ana* (K), vs.
- preverbal *[a]ġen* (most Snh.), *[a]hen* (K).

Additionally, in Ketama, Taghzut, and Zerqet, as with DO clitics, the difference is also found in the 1S:IO:

- postverbal *ay* (pan-Senhaja), vs. preverbal *[a]y* (pan-Senhaja, also K/T/Z in specific contexts), *[a]yṯ* (K), *[a]yḏ* (T/Z) (in specific contexts).

[403] On what *a* might have been historically, see Galand 1966: 295.

Underlyingly, IO clitics are all V-initial (starting in *a*). If the preceding verb ends in *a*, one of the two *a*'s is elided, e.g. (pan-Snh.)

(34) *i-kka* =*a*ḵ > *i-kkaˆ(a)*ḵ > *i-kka*=ḵ
3MS-give:P =2MS:IO
'He gave (something) (to) you (MS)'.

Alternatively, the semivowel *y* is inserted between the verb and the clitic (hiatustilger). This does not occur in Taghzut, Hmed, and Mezduy. Within Ketama, hiatustilger is more frequent in Beni Aisi than in Beni Hmed, e.g.

(35) *i-kka* =*ya*ḵ
3MS-give:P =2MS:IO
'He gave (something) (to) you (MS)'.

In the preverbal series, the initial vowel is often elided, because there is usually a preverbal element that ends in a vowel (e.g. the irrealis particle *a*, or the relative marker *(n)a* or *i*, or the preverbal negator *u*, etc.), e.g. (pan-Senhaja)[404]

(36) *š-a* *[a]*ḵ= *i-k* > *š-a*ˆḵ=*i-k*
FT-NR 2MS:IO= 3MS-give:A
'He will give (something) (to) you (MS)'.

5.3.2.2. IO vs. DO clitic Pronouns

In some Senhaja varieties, the IO and DO pronominal clitics are homophonous, except for the third person. In other varieties, the DO series and the IO series can be distinct also in other persons. The varieties differ in what distinctions they make. The following table compares the two series of clitic pronouns.

3S and 3P
As follows from the table, the third person DO and IO clitic pronouns are distinct throughout Senhaja. While the DO pronouns have a gender distinction in the third person singular, there is no distinction in the IO series. The 3S:IO clitic pronoun is *as*, and 3P is *asen*. These pronouns are uniform across Senhaja, and are, in fact, pan-Berber (cf. Galand 1994).

[404] In those cases where there is no V-final preverbal element, the IO clitics are V-initial, which is why we consider this the underlying form. Cf. Section 14.3.

DO and IO clitic pronouns

	DO clitic pronouns		**IO clitic pronouns**	
	Postverbal	**Preverbal**	**Postverbal**	**Preverbal**
1S	ay	y; yḏ (T/Z); yṯ (K)	ay	ay; yḏ (T/Z); yṯ (K)
2MS	aḵ, (a)k, (i)k (T)	ḵ, k	aḵ, ak	aḵ, ak
2FS	a(ke)m, (i)kem (T) akem (H)	(ke)m kem (T/H)	a(ke)m am (H, B)	a(ke)m am (H, B)
3MS	iṯ	ṯ, t (T/H), h (K)	as	as
3FS	it, iṭ (T/H)	t, ṭ (T/H), h (K)	=3MS	=3MS
1P	anaġ, aneġ, ana (K)	ġen, n (M), hen (K)	anaġ, aneġ, ana (K)	aġen, an (M), ahen (K)
2P	awen, awem (Z/M), iken (T), akʷen (S/H), akun (S/M) (F: awent, Z)	wen, wem (Z/M), ken (T), kʷen (S/H), kun (M) (F: awent, Z)	awen (awem, akun) (F: awent, Z)	awen (awem, akun) (F: awent, Z)
3P	iṯen, ihen (K) (F: iṯent, Z)	ṯen, hen (K/H), n (M) (F: ṯent, Z)	asen (F: asent, Z)	asen (F: asent, Z)

2MS

In Seddat, Hmed, and Tamadit dialect of Bunsar, the difference between 2MS:DO and IO is in the absence/presence of spirantization (DO *k*, IO *ḵ*):

2MS:DO and IO in Seddat, Hmed, and Bunsar (Tamadit)

	Clitic	**Verb + CL**	**Translation**	**CL + Verb**	**Translation**
DO	(a)k	i-ẓṛa = (ya)k	He saw you	š-a k = i-ẓeṛ	He'll see you
IO	(a)ḵ	i-kka = (ya)ḵ	He gave (to) you	š-a ḵ = i-k	He'll give (to) you

In most other varieties, spirantization is optional in both DO and IO series, and is not meaning-differentiating. In Taghzut, the difference in the postverbal clitics is made by using the shorter (DO) vs. the longer (IO) forms of the clitics, while in the preverbal position, spirantization plays a role:

2MS:DO and IO in Taghzut

	Clitic	**Verb + CL**	**Translation**	**CL + Verb**	**Translation**
DO	(a)k	i-ẓṛa = k	He saw you	š-a k = i-ẓeṛ	He'll see you
IO	(y)ak; ḵ	i-kka = yak	He gave (to) you	š-a ḵ = i-k	He'll give (to) you

2FS

Taghzut, Hmed, and Tamadit dialect of Bunsar distinguish between the DO and IO series in the 2FS.[405] The short forms are used in Hmed, and the long forms in Tamadit. In Taghzut, both short and long forms are found for the DO, but only the long form for the IO pronoun:

2FS:DO and IO in Taghzut, Hmed, and Bunsar (Tamadit)

	Clitic	Verb + CL	Translation	CL + Verb	Translation
DO	(a)kem	i-ẓṛa = kem (T/H) i-ẓṛa = yakem (T/B)	He saw you	š-a km = i-ẓeṛ[406]	He'll see you
IO	(a)m	i-kka = m (H) i-kka = yam (T/B)	He gave (to) you	š-a m = i-k	He'll give (to) you

2P

Taghzut, Seddat, Hmed, and Tamadit dialect of Bunsar distinguish between the DO and IO in the 2P:

2P:DO and IO in Taghzut, Seddat, and Bunsar

	Clitic	Verb + CL	Translation	CL + Verb	Translation
DO	(a)ken (T) (a)k^{w}en (S/H) (a)kun (B), k^{w}en (*fronted*, B)	i-ẓṛa = ken i-ẓṛa = k^{w}en i-ẓṛa = kun	He saw you	š-a kn = i-ẓeṛ š-a k^{w}n = i-ẓeṛ š-a k^{w}n = i-ẓeṛ	He'll see you
IO	(a)wen (all)	i-kka = wen	He gave you	š-a wn = i-k	He'll give you

In other parts of Senhaja (Ketama, Zerqet, parts of Bunsar, e.g. Iattaren), the pronominal clitics of the DO and IO series have the same form, except for the third person, e.g. (for the 2FS)

2FS:DO and IO in Ketama, Zerqet, parts of Bunsar (Iattaren)

	Clitic	Verb + CL	Translation	CL + Verb	Translation
2FS:DO	(a)m	i-ẓṛa = (ya)m	He saw you.	š-a m = i-ẓeṛ	He'll see you.
2FS:IO	(a)m	i-kka = (ya)m	He gave (to) you.	š-a m = i-k	He'll give (to) you.

Across Senhaja, the DO and IO clitics have the same form in the first person (singular and plural).

[405] In Bunsar, the 2FS clitics in the DO and IO series can be homophonous in Iattaren (DO = IO *am*).

[406] In Taghzut, usually: *š-a km = i-mmaher*.

5.3.2.3. Paradigms with IO clitics

The following table shows the paradigms with postverbal IO clitic pronouns in Senhaja following a V-final verb form *i-kka* 'he gave' and a C-final verb form *kka-n* 'they gave' (with the 3P subject marker).

Postverbal IO clitics with the verbs 'he gave', 'they gave'

	With *i-kka* 'he gave'	**With *kka-n* 'they gave'**		**With *i-kka* 'he gave'**	**With *kka-n* 'they gave'**	**Variety**
1S	i-kka = (ya)y	kka-n = ay	**1P**	i-kka = (ya)naġ i-kka = (ya)neġ i-kka = (ya)na	kka-n = anaġ kka-n = aneġ kka-n = ana	most T/S/M K
2MS	i-kka = (ya)k̲	kka-n = ak̲	**2P**	i-kka = (ya)wen (i-kka = k̲un)	kka-n = awen (kka-n = ak̲un)	all M
2FS	i-kka = (ya)m	kka-n = am	**2FP**	(i-kka = went)	(kka-n = awent)	Z/M
3S	i-kka = (ya)s	kka-n = as	**3P**	i-kka = (ya)sen	kka-n = asen	all
			3FP	(i-kka = sent)	(kka-n = asent)	Z/M

The following table shows a paradigm with preverbal IO clitic pronouns in Senhaja (unrealized event: 'he will give to me, to you', etc.).

Preverbal IO clitics with the verb 'he will give'

	IO clitics in Senhaja	**Variety**
1S	š-aˆy = i-k; š-aˆyt̲ = i-k; š-aˆyd̲ = i-k	most; K; T/Z
2MS	š-aˆk̲ = i-k	all
2FS	š-aˆm = i-k	all
3S	š-aˆs = i-k	all
1P	š-aˆġn = i-k; š-aˆn = i-k š-aˆhn = i-k	most incl. M; (M) K
2P	š-aˆwn = i-k (š-aˆwm = i-k)	all (Z/M)
2FP	(š-aˆwent = i-k)	Z
3P	š-aˆsn = i-k	all
3FP	(š-aˆsent = i-k)	Z

5.3.2.4. Double Reference (Dative Doubling)

As in other Berber languages, in Senhaja, the IO pronominal clitic can co-occur with the coreferential independent pronoun or a lexical noun following the Dative preposition *i* (cf. Section 3.2.3). In this case, the IO is expressed twice in the sentence, both by the clitic pronoun and the prepositional phrase. This phenomenon is known as *double reference*, *Dative doubling/double Dative, clitic doubling*, or *double expression of the object*. Double expression of the IO is quite common in Berber, although it is rare in Tashelhit and ungrammatical in Tuareg.[407] The verbs *nn/ini* 'to say' and *kk* 'to give' usually occur with the IO clitics that can be doubled by a (pro)noun, e.g.

(37) *i-nnaˆ* *(a)s* *i* *Ḥmed* (pan-Snh.)
3MS-say:P ˆ3S:IO DAT Ahmed
'He told Ahmed' (lit. 'He said to him to Amed').

(38) *kk* =*as* *i* *netta* (K/Z)
Give:IMP:SG =3S:IO DAT he
'Give (SG) (it) to him!'

In Ketama, the IO clitic doubling is possible when the object is indefinite:[408]

(39) *kki-ġ* =*as* *lḥem* *iḏ* *yah* *n* *emšiš*
give:P-1S = 3S:IO meat DAT one GEN cat
'I gave meat to a/one cat'.

5.3.2.5. IO clitic Pronouns in Senhaja, Ghomara, and Tarifiyt

The following table compares IO clitic pronouns in Senhaja and Ghomara (Mourigh 2015). In Ghomara, as in parts of Senhaja, the IO clitic pronouns differ from the DO series only in the third person. The forms of third person pronouns are the same. Unlike in the DO series, there are no mergers in the IO series, due to the existence of special third person pronouns.

[407] See Souag 2015a for clitic doubling in Berber in general, and Kossmann 2015 for clitic doubling in Figuig. The term *clitic doubling* should not be confused with *clitic repetition* (the phenomenon when the clitic occurs twice in the construction) as discussed in Chapter 13 (e.g. Section 13.3).

[408] Cf. Souag 2015a: 240-242 on the definiteness scale in relation to clitic doubling in Berber, from which it appears that indefinites are more rarely encountered in clitic doubling constructions than definites.

Senhaja and Ghomara IO clitic pronouns

	Senhaja		**Ghomara**	
	Postverbal	**Preverbal**	**Postverbal**	**Preverbal**
1S	ay	ay, ayḏ, ayṯ	ay	[a]y, [a](y)ṯ
2MS	aḵ, ak	aḵ, ak	aḵ	[a]ḵ
2FS	akem, am	akem, am	am	[a]m
3S	as	as	as	[a]s
1P	ana(ġ), aneġ	aġen, an, ahen	anaḫ	[a]ġen
2P	awen (awem, akun)	awen (awem, akun)	awen	[a]wen
2FP	(awent, awend, Z/M))	(awent, awend, Z/M))	---	---
3P	asen	asen	asen	[a]sen
3FP	(asent, asend, Z/M)	(asent, asend, Z/M)	---	---

The following table compares IO clitic pronouns in Senhaja, Ghomara, and Bujay Tarifiyt.[409]

Ghomara, Senhaja, and Bujay IO clitic pronouns

	Ghomara	**Senhaja**	**Bujay**
1S	ay, *preverbal* [a]y, [a](y)ṯ	ay, *preverbal* y(ṯ) (K), y(ḏ) (T/Z)	ay, *preverbal* (ḏ)ay
2MS	aḵ	ak, aḵ	aḵ
2FS	am	a(ke)m	am
3S	as	as	as
1P	anaḫ, *preverbal* [a]ġen	ana(ġ), aneġ, *preverbal* [a]ġen, [a]hen (K)	aneġ, *preverbal* (ḏ)an
2P	awen	awen (awem, akun)	aḵum
2FP	---	(awent, awend (Z/M))	aḵend
3P	asen	asen	asen
3FP	---	(asent, asend (Z/M))	asend

[409] For the forms in different Tarifiyt varieties, see Lafkioui 2007a. When preverbal, all IO clitics in Tarifit are preceded by *ḏ*, and thus differ from the postverbal clitics. In Bujay, *ḏ* in fronted clitics is found in 1S and 1P, and is optional.

5.3.3. The Ventive Clitic

5.3.3.1. Introduction

There is only one deictic (orientation, directional) clitic in Senhaja: the ventive clitic *d*, often denoting direction toward the speaker, 'hither'.[410] Its opposite, the ientive clitic (also called itive, andative, ablative, distal, centrifugal, denoting direction away from the speaker, 'thither'), present in some other Berber varieties and usually realized as *n(n)*, does not occur.[411] As other verbal clitics, it is moveable, i.e. can be found both in a postverbal position (in unmarked contexts) and in a fronted position (in specific syntactic contexts). It follows other clitics (IO and DO), and occupies the final position in the clitic complex.[412] Depending on the context, the ventive clitic has different allomorphs (cf. Section 14.2.1). See Section 5.3.3.2 for the meaning of the ventive clitic. It is most frequent with verbs of movement. In Taghzut, the ventive has been found with borrowed Arabic participles (only active ones, describing movement).[413] This has not been found in other Senhaja varieties. For example:

(40) *lehmimi talɛ-in* =*d* (T)
they rising-PL =VC
'They are going up (towards us).'

(41) *ha nekni ražɛ-in* =*d* (T)
here we returning-PL =VC
'Here we are coming back.'

[410] Deictic clitics can be considered a characteristic of Berber (Basset 1952: 36). On directionals in the light of typology, see Lamarre *at al.*

[411] This clitic is called ablative in Kossmann 2011, distal in Mettouchi 2011 and Belkadi 2015, and centrifugal in Heath 2005. Ventive is also the only deictic clitic in Ghomara (Mourigh 2015), Tarifiyt, Figuig (Kossmann 2014), some Kabyle varieties, especially Eastern Kabyle (Galand 1959, Mettouchi 1998, Aoumer 2008 and 2011, Belkadi 2018), Tasahlit, Chaouia (Penchoen 1973: 57), Ouargla (Delheure 1987: 43, 208), Tunisian Berber varieties (e.g Douiret; Collins 1982), and Nefusa (Libya), among others. Two deictic clitics are found, e.g., in Tashelhiyt (Galand 1959, El Mountassir 2000, Fleisch 2007), Seghrushen/Middle Atlas Berber (Bentolila 1969), some varieties of Kabyle (Chaker 1983: 236, Naït-Zerrad 2001), Zenaga (Taine-Cheikh 2015), Tamashek Tuareg of Mali (Heath 2005: 301, 595), Ayer Tuareg of Niger (Kossmann 2011), Tetserret of Niger (Lux 2013), Ghadames (Lanfry 1973: 227, Kossmann 2013b). Siwa (Laoust 1931: 135, 136; Souag 2010: 181) and Awjila (van Putten 2014: 82) have no functioning deictic clitics, although some traces of them can be found.

[412] When it co-occurs with the fronted IO clitic and the postposed DO clitic pronoun in Ketama, it can optionally be doubled (Section 13.3).

[413] The same phenomenon is found in Ghomara (Mourigh 2015: 324).

5.3.3.2. Meaning

The canonical meaning of the ventive clitic is directional: it expresses that the action or movement takes place in the direction of the speaker.[414] In this meaning, the ventive clitic is found with action or movement (motion) verbs, such as 'to go' (together with the ventive, it acquires the sense 'to come'), 'to take' (with the ventive: 'to bring'), 'to enter' ('to come in'), 'to arrive', 'to go down', 'to give', 'to send', 'to carry', e.g.

(42) *i-ffġ* =*id* (K/H/Z)
3MS-exit:P =VC
'He came out (to us).'

With motion verbs, the ventive tends to focus on the direction towards the speaker's deictic center.[415] It often denotes a motion towards a starting point (e.g. 'to return') or a place (e.g. 'to come'). Some verbs almost always occur with the ventive, e.g. *agum*=*d* (K), *ayem*=*d* (H), *agem*=*d* (T/Z) 'to fetch water', e.g.[416]

(43) *š-a* *d*= *n-agum* (K)
FT-NR VC= 1S-draw:A
'We will draw water.'

The stem *as* always occurs with the ventive and has the meaning 'to come'. This verb is found in the Aorist in most varieties (K/H/Z):

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[414] The semantics of the ventive has been addressed by different authors. See e.g. Marcy 1939; Galand 1959 and 2011; Aït Ahmed 1992, Mettouchi 1998 (for Kabyle;) El Mountassir 2000: 146-7; Fleisch 2007 and 2012 (for Tashelhiyt); Aoumer 2008 and 2011, Mitchell 2009: 47-48; Brugnatelli 2012: 49-50; Taine-Cheikh 2010 and 2017 (for Zenaga); Chalah 2012; Kossmann 2014 (for Figuig). These studies provide descriptions of the meanings of the clitics as they interact with verbs in individual varieties. See also Mettouchi 2011 on the grammaticalization of directional clitics in Berber, and Belkadi 2015 for a typological survey. For Tamashek, according to Heath (2005: 598), the centripetal (ventive) "specifies direction of movement toward the deictic center, usually the speaker's 'here' but sometimes another deictic center within a narrative".

[415] According to Talmy (2000), the directed motion verbs encode a path. This path can have different shapes. Verbs of perception or vision can be conceptualized in terms of motion, and involve 'fictive motion' (Slobin 2004). Fictive motion is a metaphorical or perceived motion of some entity or stimulus along an abstract path (Talmy 2000; Slobin 2008).

[416] Belkadi 2015 studies the use of directionals to encode the associated motion. This describes an additional motion prior or subsequent to the event described by the verb that appears with the directional clitic. The verb 'to draw water' can serve as an example: here, the ventive describes the movement back (to the initial place). i.e. 'to draw water and to return'.

(44) *š-a* *d=* *y-as* (K/H/Z)
FT-NR VC= 3MS-come:A
'He will come.'

In the Perfective, Ketama and Hmed varieties use the verb 'to go' with the ventive instead, while Zerqet uses the Perfective stem of the stem *as*, which is *usi/usa*:[417]

(45) (a) *i-wsa* *=d* (Z)
3MS-come:P=VC
(b) *i-dda* *=d* (K)
i-da *=d* (H)
3MS-go:P =VC
'He came.'

It has been noted by several authors (e.g. Mettouchi 2011, Belkadi 2015) that the meaning of the ventive clitic often depends on the verb. Also, the presence of the IO pronominal clitic (expressing the beneficiary, the recipient, or affected patient) often triggers the use of the directional clitics (Mettouchi 2011). Since ventive denotes direction toward the speaker, it is very common with first person pronouns (especially IO). Visibility, appearance or emergence of an object also triggers the use of ventive: the ventive can mark the event as becoming visible, or coming into existence, as e.g. with the verbs *rri=d* (K), *rẓ=id* (H/Z) 'to vomit' (based on the verbs *rri* (K), *reẓ* (H/Z) 'to return something'), *ḫlaq* /ḫleq/ (Z), *ḫyaq* /ḫyeq/ (K/H) 'to be born', e.g.

(46) *i-ḫelq* *=id* (Z)
i-ḫiq *=id* (K)
3MS-be.born =VC
'He was born.'

Other criteria of importance are telicity and displacement (Belkadi 2015). Many verbs that accept the ventive clitic are not (canonical) motion verbs. Hence, the motion/ direction is not the only meaning that the ventive clitic can contribute to the verb. If the verb is not a motion verb, the use of ventive can underline the current relevance of the action, its result, the involvement of the subject in the event.[418]

[417] In Hmed, when the verb verb *i-dda* 'he went' takes the ventive, the consonant *dd* is degeminated: *i-dda* + *d* > *i-da=d*. The same phenomenon is found in Taghzut, but not in Ketama. In Ketama, the Perfective of the verb *as* 'to come' is used in some fixed expressions.

[418] It is possible that the verb in question is not a canonical motion verb, but is still encoding a certain path.

The verb ‘to say’ with the ventive can precise the trajectory of the message (Bentolila 1969: 110).[419] In some Senhaja varieties (Hmed, Zerqet), the verb *nn/ini* ‘to say’ can combine with the ventive, e.g.

(47) *i-nna* *=(ya)s* *=d* “Ssalam!” (Z)
3MS-say:P =3S:IO =VC Hello
‘He said to him/her: *Hello!*’

In this example, the ventive expresses relevance of the utterance for the present, and also carries a temporal value: it situates the event in the recent past vs. remote past.[420] Perception verbs can be conceptualized as movement verbs, as well. This explains why ‘to see’ can accept ventive. In this case, it often denotes ‘to see that something was previously hidden/invisible’, ‘to see from a distance, from far, from above’.

Finally, the directional clitics can have expressive value and stylistic effects in narration (Bentolila 1969: 93, El Mountassir 2000: 147-151; Kossmann 2014: 274 *ff*). Mettouchi 2011 proposes the general function ‘Viewpoint of the (direct or reported) speaker (or protagonist)’ for the ventive clitic in Western Kabyle, and this description is largely valid for Senhaja, as well.

5.3.3.3. Relation with the Nominal Deixis

The ventive is normally realized as a non-spirantized *d* (unless it follows third person singular DO clitics, in which case it can be spirantized in some varieties, see Section 14.2.1), and thus contrasts with *ḏ*, e.g. the final *ḏ* of the irrealis particle, that has also been generalized to other contexts. Compare the following examples:[421]

(48) *š-aḏ* *awi-n* (K/H/Z)
FT-NR take:A-3P
‘They will take (away).’

[419] According to Mettouchi (2011), in Western Kabyle, the verb ‘to see’ without ventive refers to the fact of uttering something, while with ventive, it refers to answering and saying something relevant to the speaker. In Ketama, the use of ventive with the verb ‘to say’ is possible in some villages, but impossible in others.

[420] Similarly, in Figuig, ventive can express not only the proximity in space, but also the proximity in time (i.e. recent past/close future) (Kossmann 1997: 139). The temporal value is also possible in Zenaga (Taine-Cheikh 2015).

[421] This is a rare case when spirantization is meaning-differentiating in Senhaja.

(49) *š-a* *d=* *awi-n* (K/H/Z)
FT-NR VC= take:A-3P
'They will bring (here).'

The ventive *d* remains occlusive, since it originally was a geminate *dd* (cf. Taine-Cheikh 2017). The ventive (as well as the ientive *n*, in varieties where it exists) has been proposed to derive from deictic demonstratives, i.e. nominal deixis (Mettouchi 2011; Fleisch 2012; Taine-Cheikh 2015 and 2017). Cf. Section 6.6 on Senhaja nominal deixis. The demonstrative system is largely based on the opposition of *d* vs. *n* (e.g. nominal proximal clitic *ad* vs. distal clitic *(e)n*), which is comparable to what we find for the verbal clitics. Thus, the marker *n* has a distal meaning, while the marker *d* has a proximal meaning. Mettouchi 2011 presents two alternative grammaticalization hypotheses. The first hypothesis is that the directionals were grammaticalized from motion verbs. The second hypothesis is that the directionals were grammaticalized from demonstratives.[422] The link with nominal demonstrative clitics seems more apparent than with the motion verbs. On the whole, it is agreed that there is a link between the ventive *d* and the proximal *ad* (Ketama *aḏ*), as well as between the ientive *n* and the distal *a-n* (Ketama *aḏin*). However, there are still some questions:

- In the first place, it is not clear how to analyze the initial element *a-* in the proximal clitic *aḏ*: is it a supporting pronoun?[423] This idea is strengthened by Ketama/Taghzut number opposition in nominal clitics (singular *a* vs. plural *i*) (cf. Section 6.6). However, in many Berber varieties, including most Senhaja, the *a-* is only found in proximal clitics.
- In the second place, many (if not most) Berber languages do not have *a-d*, but a form without *-d* for the proximal clitic, e.g. Seddat/Zerqet *yya*.
- In the third place, it is possible that the proximal *a* forms go back to **äʔ*, cf. Zenatic (Figuig) and Ghadames forms with *u*, *o* (Kossmann 2013b: 322).
- Some varieties (Tuareg, Zenaga, most Senhaja except Ketama) have a triple distinction, with the proximal, distal, and middle;

[422] While giving more weight to the second hypothesis, Mettouchi notes that a combination of both factors could have played a role in the development of the verbal clitics. Thus, proximal clitic could be the outcome of a complex grammaticalization process with a main source, the locative demonstrative *d*, and "peripheral reinforcements": verb *ddu*, equative-locative copula *d*. This would mean that grammaticalization is not always "linear" (along a single path). We agree with Mettouchi that grammaticalization is not always linear.

[423] Galand (e.g. 2010:155–6) analyzes these clitics as pronominal forms ("supports de détermination") followed by a deictic element, e.g. Tashelhiyt *a=d* PROX and *a=nn* DIST. The primary role of "supporting" pronouns is to host modifiers which cannot function independently, including demonstrative clitics or relative clauses.

- Also, most Berber languages distinguish between proximal, distal, and anaphoric clitics (while in Ketama and Taghzut, distal = anaphoric).

In brief, we do not yet have a good reconstruction of the nominal deictics, and hence, it is difficult to establish the exact relationship with the verbal clitics.

To conclude, the existence of two directional clitics is characteristic of Berber, but not all varieties preserved both clitics. There is a general opposition of *d* (proximal) vs. *n* (distal), which can be also found in the nominal demonstrative deictic system. There is some variation in the usage/meaning of the clitics, while the core meaning is movement towards the deictic center (ventive) or away from it (ientive). New meanings originated from the original (directional) one: locative, temporal, expressive... Taine-Cheikh 2017 notes that verbal suffixes with comparable functions were noted in other Afro-Asiatic languages (see e.g. Frajzyngier 1987 for Chadic).

5.3.3.4. Allomorphs

The ventive has different allomorphs depending on the phonological and morphological context and on the dialect. The form *d* can be considered as the basic form, as it occurs in contexts where the use of other allomorphs is not required. On the interaction between the ventive clitic and the PNG affixes, see Section 14.3.

The postverbal ventive may have different allomorphs depending on whether it is preceded by a vowel or by a consonant of the verb stem. In some Senhaja varieties (most dialects of Ketama, Hmed, Bunsar, Zerqet), following consonant-final suffixless verb forms (Imperative singular, 3MS, 3FS, 1P), the form of the ventive clitic is *id*. In Taghzut, Seddat, and the Sahel dialect of Ketama, the clitic remains *d* in such contexts:

(50) *ḵešm* = *id* (K/H/B/Z)
kšem = *d* (K-Sahel/T/S)
enter:IMP:SG = VC
'Enter (SG) (here)!'

(51) *i-ḵešm* = *id* (K/H/B/Z)
i-ḵšem = *d* (K-Sahel/T/S)
3MS-enter:P = VC
'He entered.'

The ventive also has special forms when found in combination with the third person singular DO clitic pronouns (cf. Section 14.2.1). For example, in Ketama, *id̲* is found after 3MS:DO, and *ed* after 3FS:DO.

The following table shows the paradigm of the verb *k̲šem* 'to enter' followed by the ventive clitic in non-attraction contexts (Perfective Positive). It shows that there are two allomorphs of the ventive in Ketama (most dialects)/Hmed/Bunsar/Zerqet, different from the Sahel dialect of Ketama/Taghzut/Seddat, where the ventive is *d* in all of these forms. It also shows that the 2S subject suffix *-d̲* assimilates to the ventive: *-d̲ + d > d.*

The verb 'to enter' in Perfective with the ventive

	K/H/B/Z	K-Sahel/T/S		K/H/B/Z	K-Sahel/T/S
1S	k̲ešm-aġˆd	k̲ešm-aġˆd	**1P**	n-ekšm = id	n-ek̲šem = d
2S	h-k̲ešm-eˆd	h-k̲ešm-eˆd	**2P**	h-k̲ešm-em = d	h-k̲ešm-em = d
3MS	i-kešm = id	i-k̲šem = d	**3P**	k̲ešm-en = d	k̲ešm-en = d

When a verb form contains the ventive clitic and it is the only clitic, it is normally fronted in attraction contexts, e.g.

(52) *u* *d* = *i-kka* *šay* (K/H/Z)
NEG VC = 3MS-give:P NEG
'He did not give.'

The following table shows the paradigm of the verb *k̲šem* 'to enter' with a fronted ventive in attraction context (Aorist with the future particle). As follows from the table, the 2S/3FS/2P subject prefix *t̲-* assimilates to the fronted ventive: *d + t̲- > d.*

The verb 'to enter' in Aorist with the ventive

	Form	Variety		Form	Variety
1S	š-a d = k̲ešm-a š-a d = k̲ešm-aġ	K most Snh.	**1P**	š-a d = n-ek̲šem š-a nˆdˆek̲šem	all (incl. B) B
2S	š-a dˆk̲ešm-ed̲	all	**2P**	š-a dˆk̲ešm-em	all
3MS	š-a d = i-k̲šem	all	**3P**	š-a d = k̲ešm-en	all
3FS	š-a dˆek̲šem	all			

In Bunsar, the fronted ventive can (optionally) follow 1P verb prefix *n-* (rather than precede it as in other Senhaja varieties), e.g.[424]

(53) (a) *š-a* *d=* *n-ek̲šem* (common Snh., including B)
FT-NR VC= 1P-enter:A
(b) *š-a* *nˆdˆek̲šem* (B)
FT-NR 1PˆVCˆenter:A
'We will enter.'

This is only possible with 1P verb forms, and is considered here a specific type of assimilation. In other contexts, the ventive cannot be placed between the PNG marker and the verb stem.

5.3.4. Pseudo-verbs

5.3.4.1. Overview

Pseudo-verbs are elements that lack the subject (PNG) markers and aspectual distinctions, but can take verbal clitics (e.g. DO pronominal clitics).[425] They are different from impersonal verbs (cf. Section 3.4.4), as impersonal verbs can optionally take PNG markers (or have a frozen PNG marker), and may preserve MAN distinctions, which betrays their verbal origin. There are some elements that are similar to pseudo-verbs in that they take pronominal elements, but that take pronominal suffixes (as prepositions and kinship nouns) rather than verbal clitics. Some take Berber, and some Arabic pronominal suffixes, while some allow for variation (cf. Section 8.6.2.2). There are not many pseudo-verbs in Senhaja when compared to some other Berber languages (e.g. Kabyle), but there are some examples. Some of them are defective, taking DO clitics only in specific persons. Some of them take special forms of the DO clitics, different from the usual clitics as found with verbs. As usual, there are dialectal differences. The following words can be categorized as pseudo-verbs in Senhaja:

[424] The same phenomenon is found in Ghomara (Mourigh 2015: 55).

[425] We have not encountered pseudo-verbs with the ventive clitic *d*, which is possible in some other Berber languages. On pseudo-verbs, see e.g. Kossmann 2012a: 86-87.

Word	Meaning	DO Clitics (Notes)	Variety
škun	'who/what?'	3:DO clitics	Z
(g)ani	'where?'	3:DO special clitics	S
ġar	'be careful!'	2:DO clitics	Z
(a) šan	'(what's) the matter with'	all DO clitics, with peculiarities	T/H/Z
(a)qa	1) 'attention!'; 2) locative, present relevance	1) 2:DO clitics; 2) all DO clitics	1) pan-Snh. 2) B/Z

The particle and the pseudo-verb *(a)qa* is discussed separately in Section 5.5.

5.3.4.2. *škun* 'who/what?' and *(g)ani* 'where?' + 3:DO clitics

The first group is constituted by defective pseudo-verbs: they only take third or second person clitics. The interrogative *škun* 'who/what?' (that is also used in other parts of Senhaja) can take third person DO clitics in Zerqet, e.g.

(54) *škun =iṭ?* (Z)
WH =3MS:DO
'What's this (M)/ Who is he?'

The interrogative can also be followed by a demonstrative in Zerqet (as in other varieties), e.g.

(55) *škun wada* (Z)
WH this:MS
'What's/Who is this (M)?'

***(g)ani* 'where?' (Seddat)**
In Seddat, the interrogative *ani* ~ *gani* 'where?' can be followed by a noun or an independent pronoun, or by a conjugated form of the verb 'to be' (the two can also co-occur):

(56) (a) *(g)ani netta*? (S)
where he
(b) *(g)ani y-eğğa (netta)?* (S)
where 3MS-be:P (he)
'Where is he?'

There are special forms of this word based on the stem *(g)anik* (with a final *-k*) used only when referring to a third person. For the third person masculine singular, the stem *(g)anik* is (synchronically) used without any additional marker. When referring to a third person feminine singular, the form is *(g)anik-ṯ* (synchronically coinciding with the 3MS:DO clitic). When referring to the plural, the form is *(g)anik-en*, where the final *-en* on the surface looks like a 3P subject PNG suffix. Historically, this is reminiscent of a special series of DO markers found in other Berber languages, e.g. Figuig: 3MS *i*, FS *it*, PL *-in* (cf. Brugnatelli 1993, Kossmann 1997). It looks like the final *-i* of *(g)ani* 'when' followed by *i-* of the pronoun (*i* + *i*, *yy*) resulted in *k*:[426]

	Current form	***Original form**	**Translation**
3MS	(g)anik	*(g)ani + i	'Where is he?'
3FS	(g)anik = ṯ	*(g)ani + iṯ	'Where is she?'
3P	(g)anik = en	*(g)ani + in	'Where are they?'

5.3.4.3. *ġar* 'be careful' + 2:DO clitics

The pseudo-verb *ġar* takes the second person pronominal clitics in Zerqet and expresses a warning: 'watch out!', 'be careful!'. The pseudo-verb *ġar* is different from the preposition *ġur* 'at' that can be used to express possession and that takes pronominal suffixes (cf. Section 9.2.1.5).[427] The following table compares the forms:

	***ġar* 'be careful!'**	***ġur* 'at'**
2MS	ġar = ak	ġur-ek
2FS	ġar = am	ġur-em
2P	ġar = awen	ġur-wen

In Ketama and Hmed, 'be careful' is expressed by *ɛend-* ('at') borrowed from Arabic that takes Arabic pronominal suffixes: 2S *ɛend-ak*, 2P *ɛend-akum*.

5.3.4.4. *a šan* 'what's the matter with' (Taghzut, Hmed, Zerqet)

The construction *a šan* 'what's the matter with' (based on the indefinite pronoun *a* and the Arabic *ša'n* 'matter') is found in Taghzut, Hmed, and Zerqet, and is followed by DO pronominal clitics. In Taghzut, the third person DO clitics are of the *c* series (normally

[426] Within Senhaja, *i* + *i* > *k* is also found e.g. in Taghzut with the verb *awi* 'to take' in combination with the usual series of DO pronouns, e.g. the verb *i-wwi* 'he took' in combination with the 3MS:DO *iṯ* yields *iwwikṯ* 'he took it (M)'.

[427] In Moroccan Arabic, *ɛend* is used in both meanings (in warnings and in possessives).

found after a PNG suffix, cf. Section 5.3.1.1). In Hmed/Zerqet, the third person clitic pronouns are V-initial, i.e. of the *b* series (found after the final consonant of the verb). In the second person clitics, Hmed and Zerqet clitics lack the initial *a-*, which is normally present in these varieties in clitics of all series. The entire paradigm is as follows:

	Taghzut	**Hmed/Zerqet**
1S	a šan = ay	a šan = ay (H/Z), a šan = i (H)
2MS	a šan = ek̲	a šan = ek̲
2FS	a šan = (k)em	a šan = em
3MS	a šan = eṯ	a šan = iṯ
3FS	a šan = eṭ	a šan = iṭ (H), a šan = it (Z)
1P	a šanˆ(n)eġ	a šan = (a)naġ (H), a šan = anaġ (Z)
2P	a šan = wen, a šan = ken	a šan = wen
3P	a šan = ṯen	a šan = iṯen

In Taghzut, there is an alternative construction consisting of the independent word *a šani* that is followed by a noun or an independent pronoun (*b*) (not accepted in Hmed and Zerqet):

(57) (a) *a šan =eṯ?* (T)
a šan =iṯ? (H/Z)
NDF matter =3MS:DO
(b) *a šani neṭṭa*? (T)
NDF matter he
'What's the matter with him?'

5.4. Tense/Aspect Markers and Auxiliaries

There are various particles and auxiliaries that can be used to mark the past, future, habitual/progressive, or the relevance of the utterance for the present.

5.4.1. Markers/Auxiliaries of the Past

Different Senhaja varieties have different markers (Ketama *ara~ala*, Taghzut *indi,* Zerqet *iža*) to make the reference to the past explicit, which are most commonly found with a verb in the Perfective. These markers have other uses as well. The absence of the past marker in a sentence with a verb form in the Perfective yields a grammatical

sentence. With non-verbal predicates, the presence of the past marker is required to make the reference to the past explicit. Some varieties require the use of 'to be' with the past marker. Ketama *ara~ala* and Zerqet *ižа* are grammaticalized and reduced forms of the verb 'to be' in the Perfective that underwent different phonetic changes: Ketama *ll>l (>r)* and Zerqet *ll* > *ǧǧ* > *ž*.[428] Within Ketama, *ara* is more frequent in Beni Aisi, and *ala* in Beni Hmed. In Sahel and Lmekhzen, the stem is *tala* (from the past marker *ta* followed by the reduced form of the verb 'to be'), and it is conjugated as a regular verb (with the usual PNG affixes), e.g. *i-tala* 'he was', *h-tala* 'she was', *tala-n* 'they were', etc. Taghzut *indi* might be cognate to the Adagh Tuareg 'distant past' *ăndin* (Kossmann 2011: 109). In Ketama, following *ara~ala*, there is normally a conjugated form of 'to be' (different from Sahel/Lmekhzen). In Hmed, similarly to Sahel and Lmekhzen, the past marker *g* (cf. Ghomara *aḡ* ~ *aḵ*, Mourigh 2015: 429) and the verb 'to be' in the Perfective blended in one form, *gella*, which can be optionally conjugated (with the alternating stems *gelli/a*).

5.4.1.1. The Past Marker with a Verbal Predicate

The past markers can be combined with verbs in any aspect. Depending on the verb aspect, interpretation (meaning) of the markers can be different.

1) The Past Marker with a Verb in the Perfective

When used in combination with the verb in the Perfective, the past marker either simply makes the reference to the past explicit, or expresses a prior event in the past (the pluperfect, plusquamperfekt). Some varieties (e.g. Ketama) optionally use the verb 'to be' in the Perfective following the past marker, but it is not common. When referring to a prior event in the past, the use of the past marker is not obligatory, and the bare verb in the Perfective can be used instead.

(58) (a) *ara* *i-šša* *amaṛṛeḫt* (K)
ižа *i-čča* *ṯamaṛṛeḫt* (Z)
PST 3MS-eat:P pottage:EL

(b) *(i-)gella* *i-čča* *ṯamaṛṛeḫt* (H)
(3MS-)PST:be 3MS-eat:P pottage:EL
'He ate/had eaten pottage.'

[428] The marker *ara* is also found in Waryaghel Tarifiyt, where it can mark past or porgressive (e.g. El Hankari 2013), while the marker *dža* is found in other Tarifiyt varieties (e.g. Ighzenayn).

(59) (a) *ara* *y-sawa* *iḏ-es* (K)
iža *i-siwel* *ikiḏ-es* (Z)
PST 3MS-speak:P with-3S
(b) *(i-)gella* *i-sawa* *kiḏ-es* (H)
(3MS-)PST 3MS-speak:P with-3S
'He spoke/had already spoken with him/her.'

(60) (a) *ga* *rekm-a,* *ara* *dda-n* (K)
zgamis *uwḍ-aġ,* *iža* *ɛḏa-n* (Z)
when arrive:P-1S PST go:P-3P
(b) *zg^{w}ami(s)* *gg^{w}ḍ-aġ,* *gella(-n)* *dda-n* (H)
when arrive:P-1S PST:be(-3P) go:P-3P
'When I arrived, they had (already) gone.'

2) The Past Marker with a verb in the Imperfective

The past marker is used with the Imperfective to express a continuous or habitual action in the past. Again, the verb 'to be' in the Perfective is optional in such constructions (Ketama, Zerqet). It can also be understood as the description of a past habit:

(61) (a) *ara* *i-tett* *amaṛṛeḫt* (K)
indiˆ *(i-)šečč* *ṯamaṛṛeḫt* (T)
iža *i-tett* *ṯamaṛṛeḫt* (Z)
PST 3MS-eat:I pottage:EL
(b) *(i-)gella* *i-seṭṭ* *ṯamaṛṛeḫt* (H)
(3MS-)PST:be 3MS-eat:I pottage:EL
'He was eating pottage.' or 'He used to eat pottage.'

(62) (a) *ara* *(lli-ġ)* *tt-a* (K)
ža *(ğği-ġ)* *tt-aġ* (Z)
PST (be:P-1S) eat:I-1S
(b) *gella* *seṭṭ-aġ* (H)[429]
PST:be eat:I-1S
'I was eating.'

[429] Also possible: *gelli-ġ* (be:P-1S) *seṭṭ-aġ* in the same meaning.

(63) (a) *ara i-ttɛɛayar lquṛa* (K)
iža i-ttɛɛayar lquṛa (Z)
PST 3MS-play:I ball
(b) *(i-)gella i-ṭṭɛɛayar lquṛa* (H)
(3MS-)PST:be 3MS-play:I ball
'He was playing football.' or 'He used to play football.'

3) The Past Marker with a verb in the Aorist

The combination of the past marker (+ optionally the verb 'to be' in the Perfective in Ketama) + *š-a* + verb in the Aorist expresses an anterior non-realized event, e.g.

(64) (a) *ara (y-ella) š-a y-ffuġ* (K)
PST 3MS-be:P FT-NR 3MS-go:A
(b) *indi š-a ḏ-effeġ* (T)
iža š-aḏ i-ffaġ (Z)
PST FT-NR 3MS-go:A
(c) *(i-)gella š-a ḏ-effaġ* (H)
(3MS-)PST:be FT-NR 3MS-go:A
'He was going to go out.'

5.4.1.2. The Past Marker (+ 'to be') + Non-verbal Predicates

To make a reference to the past with a non-verbal predicate (nominal, adjectival, prepositional, etc.), in Ketama, the verb 'to be' in the Perfective is used, preceded by the past marker. In Taghzut and Zerqet, following the past marker, the use of 'to be' is optional.

(65) (a) *ara y-ella mezzi* (K: Beni Aisi)
indi (i-lla) mezzi (T)
iža (y-eğğa) meẓẓi (Z)
PST 3MS-be:P small:MS
(b) *i-tala mezzi* (K: Sahel/Lmekhzen)
3MS-PST:be small:MS
(c) *(i-)gella meččiḵ* (H)
(3MS-)PST:be small:MS
'He was young.'

(66) (a) *ara* *lla-n* *mažy-in* (K: Beni Aisi)
indi *(lla-n)* *mažy-in* (T)
iža *(ğğa-n)* *mažy-in* (Z)
PST be:P-3P coming-PL
(b) *tala-n* *mažy-in* (K: Sahel/Lmekhzen)
PST:be-3P coming-PL
(c) *gella(-n)* *mažy-in* (H)
PST:be(-3P) coming-PL
'They were coming.'

In the following example, the verb 'to be' is used as an equivalent of the English 'there was'. The use of the participle *kayen* (existential) is optional in this case in Ketama/Taghzut/Hmed:

(67) (a) *ara* *y-ella* *(kayen)* *ya* *wergaz* (K)
indiˆ *(i-)lla* *(kayen)* *ya* *wergaz* (T)
PST 3MS-be:P (EXST:MS) one man:EA
(b) *(i-)gella* *(kayen)* *un* *uryaz* (H)
(3MS-)PST:be (EXST:MS) one man:EA
'There was one man.'

In Zerqet, either the past marker + 'to be', or the past marker + *kayen* is used, but not together:

(68) (a) *iža* *i-ğğa* *un* *uryaz* (Z)
PST 3MS-be:P one man:EA
(b) *iža* *kayen* *un* *uryaz* (Z)
PST EXST:MS one man:EA
(c) **iža* *i-ğğa* *kayen* *un* *uryaz* (Z)
PST 3MS-be:P EXST:MS one man:EA
'There was one man.'

In some varieties (Taghzut, Zerqet, Sahel and Lmekhzen dialects of Ketama, but not Beni Aisi and Beni Hmed dialects of Ketama), it is possible to have the past marker with a non-verbal predicate without the verb 'to be', as e.g. in the following example

with the possessive predicate based on the preposition *ġur-* ‘at’ (cf. Sections 9.2.1.5, 9.6.1.2).[430]

(69) (a) *indi* *(lla-n)* *ġur-es* *iḫeddamen* (T)
iža *(ğğa-n)* *ġur-es* *iḫeddamen* (Z)
PST (be:P-3P) at-3S workers

(b) *ara* *lla-n* *ġur-es* *iḫeddamen* (K: Beni Aisi: *lla-n* is obligatory)
PST be:P-3P at-3S workers

(c) *ta* *ġur-es* *iḫeddamen* (K: Sahel/Lmekhzen)
PST at-3S workers

(d) *tala-n* *ġur-es* *iḫeddamen* (K: Sahel/Lmekhzen)
gella(-n) *ġur-es* *iḫeddamen* (H)
PST:be-3P at-3S workers
‘(S)he had workers.’

5.4.2. Markers/Auxiliaries of the Future

To make the reference to the future, with a verbal predicate, the verb is used in the Aorist in combination with the irrealis particle *aḏ* or the future *(ma)š-a* (cf. Section 5.2.1), e.g.

(70) *š-a* *y-eḵrez* (K)
FT-NR 3MS-plow:A
‘He will plow.’

With non-verbal predicates, auxiliaries are used. There are constructions based on the verb ‘to be’ or on the verb ‘to find’. Both can be combined with a verbal predicate.

5.4.2.1. Constructions with ‘to be’

With non-verbal predicates, the auxiliary verb ‘to be’ is used across Senhaja, e.g.

(71) *š-a* *yyi-ġ* *meqquṛ* (K)
š-aḏ *iži-ġ* *meqquṛ* (T)
š-a(ḏ *e)yyi-ġ* *meqquṛ* (H)
š-aḏ *ili-ġ* *meqquṛ* (Z)
FT-NR be:A-1S big:MS
‘I will be big/old.’

[430] In such constructions, the verb ‘to be’ can agree either with the possessor or the possessed object, as in the local Arabic.

(72) *š-a* *yyi-ġ* *ḫeddam* (K)
š-aḏ *iži-ġ* *ḫeddam* (T)
š-a(ḏ *i)yyi-ġ* *ḫeddam* (H)
š-aḏ *ili-ġ* *ḫeddam* (Z)
FT-NR be:A-1S working:MS
'I will be working.'

The following example is with a nominal predicate, that takes an optional predicative particle *ḏ* in Hmed:

(73) *ša* *ḏ-iyyi* *(ḏ)* *aryaz* (H)
FT-NR 3MS-be:A (PRED) man:EA
'He will be a man.'

The construction *š-a* + 'to be' in the Aorist can convey probability. The following sentence has two interpretations:

(74) *š-a* *y-yi* *g* *uḫḫam* (K)
FT-NR 3MS-be:A in house:EA
'He will be home.' or 'He is probably at home.'

The verb 'to be' can be combined with a conjugated adjective (cf. Section 7.4):
(75) *š-aḏ* *iži-ġ* *meqqṛ-eġ* (T)
š-aḏ *iyi-ġ* *meqqṛ-eġ* (S)
š-aḏ *ili-ġ* *meqquṛ-aġ* (Z)
FT-NR be:A-1S big-1S
'I will be big/old.'

The verb 'to be' in the Aorist can be followed by a verb in the Perfective to describe an accomplished action (or a state) in the future, e.g.

(76) *š-a* *yyi-ġ* *ḳerz-a* (K)
FT-NR be:A-1S plow:P-1S
'I will have plowed.'

(77) *š-a* *yyi-ġ* *mġuṛ-a* (K)
š-a(ḏ *e)yyi-ġ* *mġuṛ-aġ* (H)
š-aḏ *ili-ġ* *mġuṛ-aġ* (Z)
FT-NR be:A-1S grow:P-1S
'I will have grown.'

In such constructions, *š-a* + 'to be' can also convey probability, e.g.

(78) *š-aḏ* *ili-n* *ḵešm-en* *=d* (Z)
FT-NR be:A-3P enter:P-3P =VC
'They must have entered.'

When the verb 'to be' in the Aorist is followed by a verb in the Imperfective, it describes a future progressive, e.g.

(79) *š-a* *y-yi* *i-ḫeddem* (K)
š-a *ḏ-iyyi* *i-ḫeddem* (H)
FT-NR 3MS-be:A 3MS-work:I
'He will be working.'

5.4.2.2. Constructions with 'to find'

In the Hmed variety of Senhaja, the construction 'you will find' based on the verb *af* 'to find' is grammaticalized and is used to express '(there) will be'. There are two constructions: 1) the regular verbal construction with the 2S verb form *š-aˆt-af-eḏ* 'you'll find' (example *a*); and 2) the construction *š-aˆtaft* (example *b*). The construction *š-aˆtaft* takes Arabic suffix pronouns (cf. Section 8.6.2.2).[431] The negated forms of this construction are: *š-aˆtaft*-(suffix) *š, u maš-aˆtaft*-(suffix) *š, (ma) maš-aˆtaft*-(suffix) *š, m-aˆtaft*-(suffix) *š*.

(80) (a) *š-a* *ˆt-af-eḏ* *ṯimeqqiṯ* *azekka* (H)
FT-NR ˆ2S-find:A-2S rain:EL tomorrow
(b) *š-a* *ˆtaft* *ṯimeqqiṯ* *azekka* (H)
FT-NR ˆ2S:find:A rain:EL tomorrow
'There will be rain tomorrow'.

[431] The future marker *ataf* is also found in Tarifiyt (El Hankari 2013: 238, 2015b). In Hmed, the construction *š-aˆtaft* is unusual in that the final element is *-t* (rather than the 2S suffix *-ḏ*) and in that it takes Arabic pronominal suffixes, while the origin of the construction is Berber.

An example with an Arabic pronominal suffix follows:

(81) *š-aˆtaft* *-ni* *gʷ eḫḫam* (H)
FT-NRˆ2S:find:A -1S:DO in house:EA
'I will be at home.'

The following example demonstrates that just as it is the case with 'to be' and the nominal predicate in Hmed, *š-aˆtaft*-construction can optionally combine with the predicative particle *ḏ*:

(82) *š-aˆtaft* *-u* *(ḏ)* *aryaz* *nn-es* (H)
FT-NRˆ2S:find:A -3MS:DO (PRED) man:EL of-3S
'He will be her husband.'

The constructions (*š-aˆt-af-eḏ* or *š-aˆtaft*) with a verb in the Perfective expresses an accomplished action in the future or a hypothesis (possibility), e.g.

(83) (a) *š-aˆ* *t=* *t-af-eḏ* *i-ḵšem* (H)
FT-NRˆ 3MS:DOˆ2S-find:A-2S 3MS-enter:P
(b) *š-aˆtaft* *-u* *i-ḵšem* (H)
FT-NRˆ2S:find:A -3MS 3MS-enter:P
1) 'He will have entered.', 2) 'He might have entered.'

The constructions can also be followed by a verb in the Imperfective to express a progressive in the future:

(84) (a) *š-aˆ* *t=* *t-af-eḏ* *i-ḵečč̣em* (H)
FT-NRˆ 3MS:DOˆ2S-find:A-2S 3MS-enter:I
(b) *š-aˆtaft* *-u* *i-ḵečč̣em* (H)
FT-NRˆ2S:find:A -3MS 3MS-enter:I
'He will be entering.', 'You'll find him entering.'

5.4.3. Markers/Auxiliaries of the Habitual

With a verbal predicate, the Imperfective can describe a continuous or habitual action, e.g.

(85) *i-ḫeddem* (pan-Snh.)
3MS-work:I
‘He is working’, ‘He works.’

With a non-verbal predicate, the verb ‘to be’ in the Imperfective is used to express the habitual, e.g.

(86) *tiyyi-n* *ġur-es* *iḫeddamen* (K)
ṭiyyi-n *ġur-es* *iḫeddamen* (H)
tili-n *ġur-es* *iḫeddamen* (Z)
be:I-3P at-3S workers
‘(S)he has (tends to have) workers (always).’

The past marker can be combined with the Imperfective form of ‘to be’ to express a habit in the past:

(87) (a) *ara* *tiyyi-n* *ġur-es* *iḫeddamen* (K)
iža *tili-n* *ġur-es* *iḫeddamen* (Z)
PST be:I-3P at-3S workers
(b) *gella(-n)* *ṭiyyi-n* *ġur-es* *iḫeddamen* (H)
PST:be(-3P) be:I-3P at-3S workers
‘(S)he used to have workers.’

Alternatively, in Hmed, to express the habitual, the construction based on the Imperfective of the verb *af* ‘to find’ can be used. Again, there are two constructions: 1) the regular verbal construction with the 2S verb form *ṭaf-eḏ* ‘you find’ (example *a*); and 2) the construction *ṭaft* (example *b*), that can take Arabic suffix pronouns. In construction *(a)*, the final *-ḏ* marking 2S subject can be freely omitted before the verbal clitics: *ṭaf-eḏ* > *ṭaf*. (Cf. Section 8.6.2.2 for the paradigms.) An example without pronouns follow:

(88) (a) *ṭaf-eḏ* *ṯimeqqiṯ* (H)
2S:find:I-2S rain
(b) *ṭaft* *ṯimeqqiṯ* (H)
2S:find:I rain
‘It tends to rain.’, ‘There’s (usually) rain.’

Examples with pronominal elements follow:

(89) (a) *ṭaf-ḏ* *=iṯ* *ġali* (H)
2S:find:I-2S =3MS:DO expensive:MS
(a') *ṭaf* *ˆt* *ġali* (H)
2S:find:I:2S ˆ3MS:DO expensive:MS
(b) *ṭaft* *-u* *ġali* (H)
2S:find:I -3MS expensive:MS
'It's expensive.' ('It tends to be expensive', 'It is generally expensive.')

(90) (a) *ḫaḏiža* *ṭaf* *=ṭ* *g^{w} eḫḫam* (H)
Khadija 2S:find:I =3FS:DO in house:EA
(b) *ḫaḏiža* *ṭaft* *-ha* *g^{w} eḫḫam* (H)
Khadija 2S:find:I -3FS in house:EA
'Khadija is usually home', 'Khadija tends to be home.'

The following example expresses the habitual in the past:

(91) (a) *gella(-n)* *ṭaf-t* *ˆten* *ġur-es* *iḫeddamen* (H)
PST:be(-3P) 2S:find:I-2S ˆ3P:DO at-3S workers
(b) *gella(-n)* *ṭaft* *-hum* *ġur-es* *iḫeddamen* (H)
PST:be(-3P) 2S:find:I-3P at-3S workers
'(S)he used to have workers.'

5.4.4. Markers of the Present Relevance

There are two particles in Senhaja that can be used to mark the relevance of the utterance for the present: the particle *ṛa-/ṛah* (especially in Western Senhaja) and the particle *(a)qa* (especially in Eastern Senhaja). Both of them have other uses and are frequently found with non-verbal predicates, especially in locative expressions, but can be found with a verbal predicate, as well. In Ketama, *ṛah* is invariable. In Hmed, *ṛa-* takes the Arabic pronominal suffixes (cf. Section 8.6.2.2). In Eastern Senhaja (Bunsar/Zerqet), the particle *aqa* is either invariable, or it functions as a pseudo-verb, i.e. takes Berber pronominal DO clitics. The particle *aqa* is discussed separately in the following Section. Below, the particle *ṛa(h)* is treated.

The element *ṛa-* (Hmed)/*ṛah* (Ketama) comes from (Classical) Arabic *ra'ā* 'to see' (which is not preserved in dialectal Arabic in this sense).[432] Compare the Berber present relevance marker *qa* (that is used in similar contexts in Eastern Senhaja) that

[432] On the use of *ṛa* in Arabic, see Taine-Cheikh 2013.

might be etymologically linked to the verb *qqel* 'look' (not preserved in the Berber varieties that currently employ *qa*). In the source language (Arabic), *ṛa-* takes pronominal suffixes that agree in person, number and gender with the logical subject. The entire paradigm in Arabic is: 1S *ṛa-ni,* 2S *ṛa-k,* 3MS *ṛa-h*, 3FS *ṛa-ha*, 1P *ṛa-na*, 2P *ṛa-kum*, 3P *ṛa-hum*. In Hmed, the element *ṛa-* takes Arabic suffixes (cf. Section 8.6.2.2), but there are some peculiarities. In the 2FS, alongside the common 2S *ṛak/ṛaḵ*, the specifically feminine *ṛakem/ṛaḵem* is also used. In 1P, alongside *ṛa-na* with the Arabic suffix, we also find *ṛa-naġ* with the Berber suffix. In all persons, *ṛa-* can be preceded by *a-*. The particle *ṛa(h)* is usually negated as in Arabic, with the discontinuous negation *ma... š*, e.g. *ma ṛah š* for the 3MS, while *u ṛah š* is also found in Hmed.

In Ketama, the originally 3MS form *ṛa-h* became generalized to other persons and became invariable (*ṛah*). In Ketama and Hmed, the particle *ṛa* can be considered a semantic equivalent of the Eastern Senhaja particle *(a)qa* (although *qa* is sometimes found in Hmed). In locative constructions (and with other non-verbal predicates) with the reference to the present, *ṛa* can be substituted with the verb 'to be' (*b*) or can be absent (*c*), e.g.

(92) (a) *netta ṛah g uḫḫam* (K)
he PRS in house:EA
(b) *netta y-ella g uḫḫam* (K)
he 3MS-be:P in house:EA
(c) *netta g uḫḫam* (K)
he in house:EA
'He is at home.'

Another variant of the above sentence contains the existential participle *kayen*. The participle can be combined with *ṛah* to emphasize the relevance of the utterance for the present:

(93) *(netta) ṛah kayen g uḫḫam* (K)
(he) PRS EXST:MS in house:EA
'He is at home.'

The particle *ṛah* can be used with adjectives:

(94) *nekki ṛah mezyan* (K)
I PRS good:MS
'I am good.'

It can be used with a verbal predicate to mark the relevance of the utterance for the present situation, e.g.

(95) *ṛah* *i-dda* (K)
PRS 3MS-go:P
'He (indeed) went away', 'He did go away.'

(96) (a) *ṛah* *ddi-ġ* (K)
PRS go:P-1S
(b) *ṛa-ni* *ddi-ġ* (H)
PRS-1S go:P-1S
'I (indeed) went away', 'I did go away.'

As noted above, the Berber *qa* might be linked to the verb *qqel* 'look', while Arabic *ṛa-* comes from the Classical Arabic verb *ra'ā* 'to see'. Colin (1963: 6-7) states that the particle *ṛa* is especially common in regions with Berber substrates, and according to him, the origins of the particle's use must be sought in Berber (cf. also Colin 1966: 174). On the other hand, in the Middle Eastern Arabic, we find similar elements.[433] In Jordan, Palestine, and Syria, there are variants with the pharyngeal *ε* as well as with a laryngeal stop *[']*: *arε ~ ar'*. In the these varieties, there are also variants with the initial *h-*, e.g. *harε*. This parallels the initial *h-* forms in Berber *haqa-* (cf. Section 5.5). On the whole, it is more likely that the Berber *qa* is a calque on (Maghrebian) Arabic *ra*, rather than the other way around. Another option is to consider the possibility of multiple etymologies. That is, the origin in the Maghreb might be ultimately the Arabic *ra'ā*, but in turn (re)influenced in an additional wave by the Berber *qa*. While Maghrebian *ra* is very similar to other reflexes of *ra'ā* in the Middle Eastern Arabic, it could be a related but distinct innovation. It is interesting to see that some Berber varieties, such as Senhaja, but also Jerba (Brugnatelli p.c.) employ both *qa* and *ra(h)*.

[433] Taine-Cheikh (2013) cites examples from Landberg 1909 (Yemen, Daṯînah) with the pseudo-verb *raε-*. Cf. Vanhove (1995, 2010) on Yâfi (Yemenite) *raε*. In Vanhove 1995, *raε* is analyzed as a semantic equivalent of Moroccan *ha* rather than *ra* (i.e. belonging to the deictic system). Vanhove 2010 states that (when used as a copula) "the particle adds an important modal and discursive/pragmatic intensity component to the predicative relation, which can be glossed as 'S is truly, really P'" (Vanhove 2010: 337-8).

5.5. The Particle *aqa* and the Pseudo-verb *(a)qa*

The element *(a)qa* is found across Senhaja, and occurs in different forms and meanings, also depending on the variety: its use is more restricted in some varieties than in others. There are cognate forms in Tarifiyt (*qa*) and Kabyle (*aql*). In all Senhaja, *qa* can be used as an attention-seeking device and in warnings ('beware!'). In this meaning, *qa* can take the second person pronominal clitics: it is a defective pseudo-verb. In Zerqet, there is both an invariable *aqa* and a pseudo-verb *qa* (with variants) that takes the complete set of DO pronominal clitics. The particle *aqa* can be used as a marker of the relevance of the utterance for the present, and can convey probability. The pseudo-verb *qa* is usually found with non-verbal predicates, especially in locative expressions. The particle *aqa* (without the clitics) and the pseudo-verb *qa* (with DO clitics) can co-occur. Here they are glossed as AQA and QA, respectively.

5.5.1. The Pseudo-verb *aqa* as an Attention-seeking Device

The pseudo-verb *qa* can be used as an "attention-seeking device", to introduce a topic ('look', 'you see', 'y'know'), to alert, or to make a warning: 'pay attention', 'mind you', 'be careful', 'watch out', 'I told you', 'I warned you'.[434] Examples with this pseudo-verb range from 'I am still home, y'know!' to 'I warned you, this is super dangerous!'. In this meaning, *qa* is found only with the second person pronominal clitics, which agree in gender and number with the addressee. Western Senhaja varieties (Ketama, Taghzut) usually employ *qa* only in this meaning. In other parts of Senhaja (Seddat, Zerqet), such uses of *qa* with the second person DO clitics are also found. As *qa* in this meaning occurs only with the second person clitics, it belongs to the imperative group of pseudo-verbs, as some of the pseudo-verbs discussed above, such as *ġar* 'be careful!' (Zerqet). The pseudo-verb *qa* as an attention-seeking device is optionally preceded by *ha* 'here'. The complete short paradigm of this defective pseudo-verb is as follows.[435] Such forms are not used alone as an exclamation, but form part of a larger sentence.

***(h)aqa* 'lo, beware' (pan-Snh.)**

	Form	**Usage**
2MS	(h)aqaˆk̲	with a male listener
2FS	(h)aqaˆm	with a female listener
2P	(h)aqˆawen	with multiple listeners

[434] It fits the definition of presentatives in Bloch (1991: 54).

[435] In Taghzut, *aqa* takes 2P:IO pronominal form (*wen*) rather than a DO form. In Hmed, *aqa* can take either a 2P:IO form (*wen*) or a 2P:DO form (*k̲ʷen*).

Examples:

(97) *aqaˆm* *ẓṛi-ġ* (K)
QAˆ2FS:DO see:P-1S
‘(Y’know) I saw.’ (addressing a female listener)

(98) *aqaˆk̲* *ay* *dˆ* *enna* (S)
QAˆ2MS:DO what VCˆ 3FS:say:P
‘Look what she said.’

(99) *aqaˆm* *flanta* *haˆ* *(a)y* *ṯ-enna* *ḫḫ-i* (Z)
QAˆ2FS:DO such:FS here what 3FS-say:P on-1S
‘Look/listen, a certain lady, here is what she said about me.’

(100) *aqaˆk̲* *Muḥemmeḏ* *i-mmuṯ* (Z)
QAˆ2MS:DO Mohammed 3MS-die:P
‘Did you know that Mohammed died?’

5.5.2. The Elements *aqa* and *qa* in Eastern Senhaja

5.5.2.1. The Uses of *aqa* and *qa*

Zerqet has both the invariable particle *aqa* (that does not take pronominal clitics) and the pseudo-verb *qa*, that can take DO clitics in any person. The particle *aqa* can mark the relevance of the statement for the present (cf. the element *qa* in Tarifiyt, Mourigh & Kossmann 2020).[436] Ketama lacks the invariable *aqa* as a present relevance marker.[437]

The particle *aqa* (without the clitics) can be combined with verbs in different aspects. When *aqa* is combined with a verb form in the Perfective, it stresses the present relevance of the described event. It can also convey probability. In this use, it can be substituted by the future *š-a* in combination with the verb ‘to be’ in the Aorist (cf. Section 5.4.2.1). The following sentence could be said by someone expecting that the event has happened:

(101) *aqa* *k̲ešm-en* =*d* (Z)
AQA enter:P-3P =VC
‘They must have entered.’

[436] When used without the clitics, besides *aqa*, there is also *qay* in Zerqet. In Hmed, we find *aqay* and *qay*, but not *aqa*.

[437] In some contexts, the borrowed Arabic (petrified) *ṛah* fulfills this function of *aqa* in Ketama.

In the following example, the two people are debating whether someone they will call by phone is still sleeping. One could say:

(102) *aqa* *i-kker.* *i-tekker* *beḵri* (Z)
AQA 3MS-rise:P 3MS-rise:I early
'He should be awake. He wakes up early.'

One might say, as he is recounting an event that he thinks (maybe) he told his friend before:

(103) *aqa* *nni-ġ* *=aḵ* *=t* *niġ?* (Z)
AQA say:P-1S =2MS:IO =3FS:DO or
'I have told it to you (MS), no?'

In some examples, *aqa* only marks the present relevance, but does not convey a lack of certainty. If someone were asked to do a new job, he could say (and this statement is obviously relevant to the discussion):

(104) *aqa* *u* *ssn-aġ* *š* *a* *ḡḡ-aġ* *šš̌ġul* *=nna* (Z)
AQA NEG know:P-1S NEG NR do:A-1S work =ANP
'I don't know how to do that job.'

The particle *aqa* can be found with the verb 'to be' in the Perfective, e.g.

(105) *aqa* *ğği-ġ* *gi* *Martil* (Z)
AQA be:P-1S in Martil
'I have been in Martil.'

The particle *aqa* can occur in the possessive *ġur*-construction (cf. Section 9.6.1.2). In a conversation where a certain kind of component is being searched for, one could say:

(106) *aqa* *iža* *i-ğğa* *ġur-eḵ* *nnuɛ* *=nna* (Z)
AQA PST 3MS-be:P at-2MS kind =ANP
'You used to have that kind.'

When *aqa* is found with a verb in the Imperfective, it describes a habitual event that is relevant to the present (cf. Mourigh & Kossmann 2020). For example, if someone had a neighbor who was always too noisy, he could go to the landlord and say:

(107) *aqa* *waḏin* *i-tṣeḍḍaɛ* =*anaġ* *ku(l)* *nnhar* (Z)
AQA DIST:MS 3MS-disturb:I =1P:DO every day
'That one disturbs us every day (and this is presently relevant).'

In the following examples, *aqa* expresses both present relevance and probability. The following sentence is said by someone who knows the other person is coming, because he said he would:

(108) *aqa* *i-ɛeddu* =*d* (Z)
AQA 3MS-go:I =VC
'He is coming.', 'He must be on his way (here).'

The following sentence is said of some phrase or expression that might be in use in another dialect of Zerqet (Wersan):

(109) *(yemken)* *aqa* *qqaṛ-en* =*t* *gi* *Wersan* (Z)
maybe AQA say:I-3P =3FS:DO in Wersan
'(Perhaps) they say it in Wersan.'

The particle *aqa* can be found in combination with a verb form in the Aorist, e.g.

(110) *azekka* *aqa* *š-aḏ* *i-ɛḏu* *za Martil* (Z)
tomorrow AQA FT-NR 3MS-go:A to Martil
'Tomorrow he is going to Martil.'

The pseudo-verb *qa* has different forms, discussed in the following section. It is found with non-verbal predicates, e.g. in locative expressions, and does not convey uncertainty. In many examples, the pseudo-verb *qa* in Zerqet corresponds to 'to be' in Ketama (and Hmed), e.g.

(111) (a) *lli-ġ* *g* *uḫyam* (K)
be:P-1S in house:EA
(b) *aqaˆy* *g* *ˆeḫyam* (Z)
QAˆ1S:DO in house:EA
'I am in the house.', 'I am home.'

The particle *aqa* and the pseudo-verb *qa* can co-occur. When *aqa* is directly followed by *aq*, the vowels coalesce: *aqa* + *aq* > *aqaˆq*:

(112) *aqa ʿq =eṯ g eḫyam* (Z)
AQA ʿQA=3MS:DO in house:EA
'He/It (M) should be in the house.'

When the particle *aqa* is separated from a pseudo-verb, its underlying form (*aq* in this case) is visible. Compare the following variants of a sentence that could be said when talking for example about a phone that a person loaned someone else. He may say to that person:

(113) (a) *aqa εaḏ aq=eṯ ġur-eḵ!* (Z)
AQA still QA-3MS at-2MS
(b) *aqa ʿq-eṯ εaḏ ġur-eḵ!*
AQA ʿQA-3MS still at-2MS
'It should still be with you!' 'You must still have it!'

The paradigms with the pseudo-verb *qa* is given in the following Section.

5.5.2.2. The Pseudo-verb *qa*

When combined with the pronominal clitics, there are different bases depending on the variety and the person of the clitic, e.g. Bunsar *aqa-* ~ *aqala-*. In Zerqet, the pseudo-verb can be preceded by the presentative *ha* 'here'. There is also the base *qay* (Bunsar/Zerqet) used with the third person pronominal elements, that in Bunsar differs from *aqa(la)* in that it refers to an object that is further away from the speaker and hearer. In other words, *qay* is "distal"/"there", while *aqa(la)* is "proximal"/"here". The reason why the base *qay* is most often found with the third person pronominal elements is that the third person tends to be further away from the speaker (that is, the first person/speaker and the second person/hearer tend to be in the *aqa(la)*-range). However, the base *qay* can be found with the first (and second) person pronouns, as well. The paradigm is presented in the following table.[438]

[438] As usual, Zerqet allows for an optional use of specifically feminine plural forms (2FP *awent* and 3FP *tent*), omitted from the table. In most situations, the (common) 2P and 3P forms are more frequent and more generic.

	Bunsar	**Zerqet**	**Zerqet, forms with *ha-***
1S	aqa(la) = y	aqa = y	haˆqa = y
2MS	aqa(la) = k̲/k	aqa = k̲	haˆqa = k̲
2FS	aqa(la) = m	aqa = m	haˆqa = m
3MS	aqa(y) = t̲, aqala(y) = t̲	aqay = t̲, aq = et̲, qay = t̲	haˆqay = t̲, haˆq = et̲
3FS	aqa(y) = t, aqala(y) = t	aqay = t, aq = et, qay = t	haˆqay = t, haˆq = et
1P	aqa(la) = naġ	aqa = naġ	haˆqa = naġ
2P	aqa(la) = wen	aqa = wen	haˆqa = wen
3P	aqa(y) = t̲en, aqala(y) = t̲en	aqay = t̲en, aq = t̲en, qay = t̲en	haˆqay = t̲en, haˆq = t̲en

Some examples follow:

(114) *nekkini aqala = y g eḫyam* (B)
I QA = 1S:DO in house:EL
'I am home.'

(115) *nekkini aqala = y mezyan* (B)
I QA = 1S:DO good:MS
'I am good.'

(116) *aqalay = t̲ i-skurrum* (B)
QA = 3MS:DO 3MS-sit:I
'Here he is sitting.'

(117) *Muḥemmed aq = et̲ g eḫyam* (Z)
Mohammed QA = 3MS:DO in house:EA
'Mohammed is at home.'

(118) *aq = et beṛṛa* (Z)
QA = 3FS:DO outside
'(Here) she is outside.'

(119) *aq = t̲en d̲a* (Z)
QA = 3P:DO here
'They are here.'

5.5.2.3. Forms with and without *ha*

The presentative *ha* can be combined with the pseudo-verb *qa* (and variants). The forms with *ha* be characterized as "marked" or "proximal". The initial *ha* ('here') serves as a "proximal" marker or "pointer". It stresses proximity/visibility, and is used especially when pointing at something or someone. The *ha*-initial forms are typically used when the speaker and hearer are in the same room, and normally not by telephone, unless it is a video call (skype, whatsapp), where the interlocutor can see you or the thing you are speaking about. The distinction between the forms can be generally described as the distinction between visible (*ha*) and not visible. The proximity/visibility can be perceived not only from the speaker's, but also from the hearer's point of view. This explains the existence of 1S *aqa=y* and *haˆqa=y*, e.g.

(120) *aqa=y* *gi* *Bni* *Bunsar* (Z)
QA=1S:DO in Beni Bunsar
'I am in (the land of) Beni Bunsar' (far from the listener, who is in Zerqet)

By contrast, *haˆqa=y* implies proximity/visibility. Hence, the form *haˆqa=y gi Beni Bunsar* (intended: 'I am in Beni Bunsar') is uncommon, unlike the following form:

(121) *ha* *ˆqa=y* *(i)kid̲-ek̲* (Z)
here ˆQA=1S:DO with-2MS
'(Here) I am with you (MS).'

The second person forms with the initial *ha* are not frequent (although grammatically possible). This is possibly due to the fact that it is not common to draw someone's attention (by means of *ha*) in order to point out the location of themselves. Similarly, in English, it is not common to say 'Look! There you are!' (although it is possible to say 'There you are!' or 'Look! There they are!'). However, there are some situations where *haˆqa=k̲* could be used. For example, a mother is looking for her child. When she finally finds him, she can say *haˆqa=k d̲a!* '(Look) you (MS) are here!' Thus, she is using the presentative *ha* to make, as it were, the child to look at himself. This is not common, since in real life, you rarely need to point someone's attention to themselves. In questions about the location, the base *aqa* is used, e.g.

(122) *ani* *aqa=k̲?* (Z)
where QA=2MS:DO
'Where are you (MS)?' (e.g. in a phone conversation)

5.5.2.4. Third Person Forms in Zerqet

The third person forms demand special attention. In Zerqet, for each person, there are five distinct, forms, e.g. 3MS *aq=eṯ, haˆq=eṯ, aqay=ṯ, haˆqay=ṯ, qay=ṯ*.[439] The stem *qay* is only found with the third person.

aq=eṯ

The form *aq=eṯ* can be described as a general, unmarked form, not carrying information about the proximity and not accompanied by a nod/pointing gesture. The form *aq=eṯ* can be combined both with *ḏa* 'here' and *ḏin* 'there', e.g.

(123) *arba nn-em aq=eṯ gi Bni Bunsar* (Z)
child:EL of-2FS QA=3MS:DO in Beni Bunsar
'Your (FS) child is in Beni Bunsar.'

The element *qa* cannot be omitted in Zerqet in such examples, in contrast with Ketama, where no pseudo-verb or copula is required.

haˆq=eṯ

The form *haqeṯ* is best analyzed as *haˆ(a)q=eṯ*: the initial *ha* is a presentative, combined with *aq=eṯ* discussed above. The form *haˆq=eṯ* is marked and draws attention: 'Look, he is here'. It implies that the speaker sees the object in question and can point at it. For example, a person is at the door, looking for Mohammed, who is sitting beside me. I could say: *haˆq=eṯ* '(Look) he is here'.

aqay=ṯ

The form *aqayṯ* can be labelled as 'distal', e.g.

(124) *aqay=ṯ gi Bni Bunsar* (Z)
QA=3MS:DO in Beni Bunsar
'He is in Beni Bunsar.'

It is not common to find *aqay=ṯ* in combination with *ḏa* 'here'.

[439] As discussed above, in the first person, there is a general opposition of *aqay* (neutral) and *haqay* (visible).

haˆqay=ṯ

The form *haˆqay=ṯ* is based on *aqay=ṯ* ('distal') and thus seemingly presents a contradiction (*ha* "proximal" + *aqay* "distal"?). However, this form is used. Here is a possible context where *haˆqay=ṯ* may occur: one person is looking for a cup in the next room, but the cup is with me at the desk. I could call to that person and say *haˆqay=ṯ* (although he cannot yet see me or the cup) 'Look, it (M) is here!'. In this phrase, *ha* marks the near/visible (for me), while *aqay* marks the distance (to the hearer).

qay=ṯ

The form *qay=ṯ* is usually used in situations of pointing out where someone or something is. This is probably the reason why there are no first or second person equivalents. Consider the following situations. A person enters the room and asks another person about Mohammed, who is also in the room and visible (but the speaker hasn't yet noticed him), 'Where is Mohammed?'. The answer could be:

(125) *qay=ṯ* (Z)
QA=3MS:DO
'He is there/ There he is' (accompanied by pointing or at least a nod)

A person is next to another person and he is looking for his cup (which is right next to him, but he is unable to find it). The other person could say:

(126) (a) *aq=eṯ ḏina* (Z)
QA=3MS:DO there
'There it is (near you)'
(b) *qay=ṯ* (Z)
QA=3MS:DO
'It is over there.' (pointing at it)

In another situation, a person is in another room looking for his cup, which the other person knows is in the same room. Across the house (out of eyeshot), the other person could only use variant *(a)*, *aq=eṯ ḏina* 'It is there (near you)', and not *(b)* **qay=ṯ*, as pointing is impossible in this case because the speakers cannot see each other, so the listener would have no way of knowing where *qay=ṯ* refers to. When someone says *qay=ṯ*, the listener automatically looks to see where the speaker is pointing to.

While this is a general rule, there may be exceptions. Thus, for the question *Muḥemmeḏ, ani aq=eṯ?* 'Mohammed, where is he?', the answer could be:

(127) *qay=ṯ* *gi Bni Bunsar* (Z)
QA=3MS:DO in Beni Bunsar
'He is in Beni Bunsar'

This is possible, but not very common. It is probably possible because the location of Beni Bunsar is known, and thus the phrase *gi Beni Bunsar* takes the place of the pointing gesture.

A note on the vowel length

In both Bunsar and Zerqet, one of the two *a*'s can be prolonged. When the initial *(h)a* is prolonged, this might indicate the closeness of the object, e.g.

(128) *haaaˆaqay =ṯ* (B)
here QA =3MS:DO
'He is *here* (visible to the hearer)!'

When the medial *a* is prolonged in the *qa* (distal) forms, this stresses the distance of the object. The farther the object is away, the longer the vowel is pronounced., e.g.

(129) *qaaaaaay=ṯ ani!* (Z)
QA=3MS:DO where
'He is (far) over there!' ('there is he', 'over there is where he is!')

5.5.2.5. Distribution of the Third Person Forms in Zerqet

It is clear that the situation is different with the third person forms compared to the first and second persons. In what follows, the five distinct forms are examined for the 3MS. The goal is to investigate in which contexts and in combination with what elements they occur, and to describe the emerging patterns.

1) *A far location (distal object)*

In combination with a location which is far (i.e. implying distance), e.g. *gi Bni Bunsar* 'in (the land of) Beni Bunsar', the following forms can be used:

(130) (a) *aq=eṯ* *gi* *Bni* *Bunsar* (Z)
(b) *qay=ṯ* *gi* *Bni* *Bunsar* (Z, rare)
QA=3MS in Beni Bunsar
'He is in Beni Bunsar.'

Both *ha*-initial forms are impossible, as they imply visibility.

2) *Neutral location (object is not visible)*

In combination with a neutral location (which is not specified as far or close), e.g. with *g eḫyam* 'at home', the following forms can be used:

(131) (a) *aq=eṯ* *gˆ* *eḫyam* (Z)
(b) *qay=ṯ* *gˆ* *eḫyam* (Z)
QA=3MS:DO in house:EA
'He is at home.'

The form *aqay=ṯ gˆeḫyam* is not frequent, and both *ha*-initial forms are impossible.

While *qay=ṯ gˆeḫyam* 'He is at home' is grammatical, the form **qay=ṯ ikiḏ-i g eḫyam* is ungrammatical (intended: 'He is with me at home'), as *qay=ṯ* cannot be combined with *ikiḏ-i* 'with me' which implies proximity.

The form *haˆq=eṯ gˆeḫyam* 'He is at home' is rare, but marginally possible. One might imagine a (doll) house, around which two children are looking for their pet mouse. The first one to find him could say *haˆq=eṯ gˆeḫyam*, thus indicating that the listener can/should come and see it.

The form *haˆq=eṯ ikiḏ-i gˆeḫyam* '(Here) he is with me at home' is not frequent, either; the variant *aq=eṯ ikiḏ-i g eḫyam* with the "neutral" *aq=eṯ* is more common.

3) *A near location (visible object)*

In combination with a location which is near (implying proximity), e.g. with *ḏa* 'here' or with *(i)kiḏ-i* 'with me', *(i)kiḏ-eḵ* 'with you (MS), the following forms can be used: *aq=eṯ* (since it is also combinable with a distant location, it is considered as a neutral form, unmarked for the distance), *haˆq=eṯ* (as expected, as it implies visibility), e.g.

(132) (a) *aq =eṯ* *(i)kiḏ-i* (Z)
QA=3MS:DO with-1S
(b) *ha* *ˆq =eṯ* *(i)kiḏ-i* (Z)
here ˆQA=3MS:DO with-1S
'(Here) he is with me.'

The form *haˆqay=ṯ* is not found in combination with *ikiḏ-i* ‘with me’ as it works better on its own: ‘he is here’, ‘here he is!’ Similarly, the form *aqay=ṯ* is not frequently found with *ikiḏ-i* ‘with me’, but for a different reason: since it implies distance. The same can be said about the form *qay=ṯ*, which is not combinable with *ikiḏ-i* ‘with me’ as it implies distance.

4) *State description*

In combination with the adjective that describes a state, e.g. with *mezyan* ‘good’, only the *aq*-forms (e.g. 3MS *aq=eṯ*) can be used, and none of the other forms, e.g.

(133) *aq=eṯ* *mezyan* (Z)
QA=3MS:DO good:MS
‘He is fine/good.’

5) *Verbal predication*

In combination with a verb form in the Imperfective, e.g. *i-skurrem* ‘he sits’, the following forms can be used: *qay=ṯ*, *aq=eṯ*, and *haˆq=eṯ*, e.g.

(134) (a) *qay=ṯ~aq=eṯ* *i-skurrem* (Z)
QA=3MS:DO 3MS-sit:I
‘He is sitting.’
(b) *ha ˆq =eṯ* *i-skurrem* (Z)
here ˆQA =3MS:DO 3MS-sit:I
‘(Here) he is sitting.’

In combination with a verb form in the Perfective, e.g. with *i-ɛḏa* ‘he went’, none of the forms of the pseudo-verb *qa* (with a DO clitic) can be used. As described in Section 5.5.2.1, the particle *aqa* (expressing the present relevance) can be used in such contexts. Similarly, in combination with a verb form in the Aorist, e.g. with *š-aḏ i-ɛḏu* ‘he will go’, only the invariable particle *aqa* can appear, and none of the forms with the pronominal clitic.

5.5.2.6. Conclusions

The following table summarizes the uses of the particle *aqa* and the pseudo-verb *qa* (and variants) in Zerqet.

Stem	Forms	PROX	DIST	STATE (ADJ)	Verb (IPF)	Verb, (AOR/PERF)
aqa	(invariable)	-	-	-	+	+
aqa=	y, k̲, m, naġ, wen(t)	+	+	+	+	-
aqay=	t̲, t, t̲en(t)	rare	rare	-	-	-
haˆqa=	y, k̲, m, naġ, wen(t)	+	- (rare)	-	-	-
haˆqay=	t̲, t, t̲en(t)	rare	- (rare)	-	-	-
aq=	et̲, et, t̲en(t)	+	+	+	+	-
haˆq=	et̲, et, t̲en(t)	+	-	-	+	-
qay=	t̲, t, t̲en(t)	-	+	-	+	-

In these forms, *ha* stresses the proximity, and is used especially when pointing at something or someone; the stem *aq* (as in *aq=et̲*) can be described as a "neutral" form, and has maximum compatibility. Other observations follow:

1) the invariable form *aqa* without pronominal elements is the only form that can be found in combination with a verb form in Perfective or Aorist. It serves to emphasize the relevance of the utterance (situation that already happened or will happen in the Future) for the present, or conveys probability;
2) the stem *aqa(y)* is found in combination with all persons (when combined with the third person pronouns, there is always a final *-y*, e.g. 3MS *aqay=t̲*). It is neutral with regard to proximity. In combination with the third person (e.g. the 3MS form *aqay=t̲*), it is usually not used with a locative predication so that e.g. *aqay=t̲ gi Bni Bunsar* 'He is in Beni Bunsar' is not commonly used. Instead, the form *aq=et̲* is found in these contexts. It can be concluded that the 3MS semantic equivalent of 2MS *aqa=k̲* (etc.) is *aq=et̲* and not *aqay=t̲*;
3) the stem *haˆqa(y)* is found in combination with all persons (in the third person the stem is *haˆqay*). It implies proximity and visibility due to the initial *ha* ('here') and hence cannot be used in locative predication implying non-visibility. It can be used in exclamations e.g. *haˆqa=wen d̲a!* 'There you (PL) are!'
4) the stem *aq* is found in combination with the third person (3MS *aq=et̲* etc.). However, with other persons, we can also posit the same stem, if we analyze *aqa=y, aqa=k̲* etc. as *aq=ay, aq=ak̲* etc. As we find the forms *aqak̲* in locative predication, and this is also the context where *aq=et̲* is found, we can analyze them as belonging to the same paradigm. *aq=et̲* is the only possible form found in combination with adjectives (state description);

5) *haˆq*: as it is the case with *aq*, it is not clear if the stem *haˆq* is found only with the third person (3MS *haˆq=eṯ* etc.), or whether is it found with all persons, if we analyze the 1S *aqa=y* as *aq=ay*, etc. Since the form *haˆq=eṯ* is found in proximal locative predication (e.g. *haˆq=eṯ ikiḏ-i* '(Here) he is with me'), it can be semantically compared with the *haˆqa*-forms in the first and second persons, cf. *haˆqa=wen ḏa* 'There you are!'
6) the stem *qay* is found only with the third person pronominal elements (e.g. 3MS *qay=ṯ*). It can be found in combination with a locative predication when referring to a distal place (the object is not visible), e.g. *qay=ṯ gˆeḫyam* 'He is at home', but not **qay=ṯ ikiḏ-i* 'He is with me' (as this context implies visibility/proximity). It can also be found in combination with a verb form in the Imperfective, e.g. *qay=ṯ i-tettru* 'He is crying'.

5.6. Negation of the Verbal Predicate

This section discusses the negation of the verbal predicate. It covers the use of the verbal negative particles (cf. Section 5.2.2), but also other means to negate a verbal predicate.[440] Some of the negation strategies are not specific to the verb (e.g. the negator *maši* or the construction *u...bu*). As mentioned previously, the verbal predicate is usually negated by means of the bipartite (discontinuous) negation. The first (preverbal) negator can be *u, uḏ, la* or *ma*, depending on the context (mood, aspect) and the variety. In Ketama, especially in Beni Hmed and in specific contexts, the preverbal negator can be omitted. The first negator is typically omitted when there are other preverbal elements (such as the irrealis *a*, future *š-a*, the relative marker *a*, the past marker *ara*, etc.) and with 3MS verbal forms that have the prefix *i-*. The dialect of Beni Hmed tends to omit the preverbal negator more frequently than the dialect of Beni Aisi.

The second (postverbal) negator can be *š, ši*, or *šay*: the three are usually in free variation. However, there are certain tendencies to use a specific postverbal negator depending on the mood/aspect and pragmatic factors (e.g. insistence, emphasis, contradiction). The postverbal negator follows the entire verbal complex. The postverbal negator can be absent in specific contexts, especially when there are other negators or negative elements in the sentence (such as *walu* 'nothing', *ḥedd* 'no one', *ḥetta* 'not even', etc.), but also in some other contexts.[441]

[440] Negation has been a focus of several studies of Berber. See, among others, Chaker & Caubet 1996, Mettouchi 2006, Lafkioui 2013b, Bensoukas 2013, Brugnatelli 2014, Lafkioui & Brugnatelli 2020.
[441] On the behavior of the postverbal negator in Moroccan Arabic, see Caubet 1996: 86-88. On the behavior of negators in Tarifiyt, see Lafkioui 1996: 56-60.

In verbal negation, many Berber languages also make use of specific (negative) verb stems (the Perfective Negative and the Imperfective Negative). In Senhaja, the use of negative verb stems is limited to parts of Zerqet (Wersan) and Mezduy (cf. Sectios 4.4 and 4.6.).

Sometimes, a single negator *maši* can be used to negate the verbal predicate (Section 5.6.3.1). The negator *maši* is most frequently used with non-verbal predicates (cf. Section 6.1.2.2 on the negation of the nominal predicate). At the same time, the discontinuous negation (such as *u... š*) is not specific to the verbal predicate, and can be also found with other types of predicates (cf. Section 7.6 on the negation of the adjectival and participial predicate).[442] In what follows, we first focus on the relationship between the bipartite negators and the verbal MA(N) stems (Section 5.6.1), then discuss negation of the verb 'to be' (Section 5.6.2), and then other negation strategies and negative elements (Section 5.6.3).

5.6.1. Verbal Negation and Mood/Aspect

5.6.1.1. Perfective

The following example illustrates the negation of the sentence with the verb form in the Perfective:

(135) *u* *ẓṛi-ġ* *š* (pan-Snh.)
NEG see:P-1S NEG
'I did not see.'

In Ketama, in contexts of negation, due to the presence of the postverbal negator *š/ši/šay*, the final *-ġ* of the 1S subject marker *-a(ġ)* resurfaces. Compare the following affirmative and negative forms:

(136) (a) *ḵerz-a* (K)
plow:P-1S
'I plowed.'
(b) *u* *ḵerz-aġ* *š* (K)
NEG plow:P-1S NEG
'I did not plow.'

[442] According to Lafkioui (2013b: 115), the verbal negation mainly expresses existential values, while the non-verbal negation is used for both existential and attributive purposes. The author further notes that "The existential negation marker is similar in verbal and non-verbal negation, while attributive negation is mainly marked by the continuous morpheme *maši...* (or their variants)."

The preverbal negator *u* is realized as *uḏ* when followed by a vowel, e.g. with vowel-initial verbs in 1S and 3P (these forms that have no PNG prefix), e.g.

(137) *uḏ* *ufi-ġ* *š* (pan-Snh.)
NEG find:P-1S NEG
'I did not find.'

The final *-ḏ* in *uḏ* must be the generalized *ḏ* of the irrealis marker *aḏ*. With 3MS verb forms, Ketama has the negator *u* followed by the 3MS prefix *y-*, Taghzut and Hmed have the negator *u* followed by the 3MS prefix *ḏ-*, and Zerqet has the negator *uḏ* followed by the 3MS prefix *i-*.[443] For example:

(138) *u* *y-essen* *š* (K)
u *ḏ-essen* *š* (T/H)
uḏ *i-ssen* *š* (Z)
NEG 3MS-know:P NEG
'He doesn't know.

As mentioned previously, the preverbal negator can be absent in Ketama, especially with 3MS verb forms, e.g.

(139) *i-ssen* *š* (K)
3MS-know:P NEG
'He doesn't know.

5.6.1.2. Aorist

When the verb form in the Aorist following the future marker *(ma)š-a* is negated, the preverbal negator is usually absent in Ketama. In Zerqet, by contrast, the preverbal negator *u* is usually present in such contexts. In the rest of Senhaja (Taghzut/Seddat/Hmed), the preverbal negator *u* before *(ma)š-a* is optional, e.g.

(140) *(-)* *(ma)š-a* *y-ṯherrek* *š* (K)
(u) *(ma)š-a* *ḏ-ṯherrek* *š* (T/S/H)
u *(ma)š-aḏ* *i-ṯherrek* *š* (Z)
NEG FT-NR 3MS-move:A NEG
'He will not move.'

[443] As mentioned previously, the negator could have been analyzed as *uḏ* also for Taghzut and Hmed, but in this case, the 3MS verb prefix must be "zero".

In some Senhaja varieties and especially in Hmed, with verbs in the Aorist, alongside the common variant *(u) (ma)š-a* with the optional negator *u* before the future *(ma)š-a*, the particle *ma* can be used alone (with the assimilated irrealis particle *a*). In this case, *ma* is a combination of the negation marker and the future marker: this form combines the properties of the Arabic negator *ma* with the future marker *maš-a*. For example:

(141) *(u)* *ma(ˆa)* *ẓṛ-aġ* *š* (H)
NEG NEG:FT(ˆNR) see:A-1S NEG
'I will not see.'

The negator *ma* is not used with verb forms in the Perfective.

In Taghzut, alongside *(u) (ma)š-a*, in the negation of the Aorist, we find the future particle *lˆa* (cf. Section 5.2.1.3) in combination with the postverbal *š*:

(142) *lˆa* *mmahr-eġ* *š* (T)
FT-NR see:A-1S NEG
'I will not see.'

5.6.1.3. Imperfective

With verbs in Imperfective, most Senhaja varieties employ the same preverbal negators as in the context of Aorist and Perfective, viz. *u(d)*, e.g.

(143) *u* *ẓẓaṛ-aġ* *š* (K)
u *tẓaṛay-aġ* *š* (Z)
NEG see:I-1S NEG
'I don't see.'

(144) *u* *y-ḵerrez* *š* (K)
ud *i-ḵerrez* *š* (Z)
NEG 3MS-plow:I NEG
'He does not plow.'

However, in Taghzut and Hmed, specifically with verb forms in Imperfective, the preverbal negator is *la* or the combination of *u* and *la*.[444] It is probably a different *la* that is found with verb forms in the Aorist (affirmative) in Taghzut. This *la* might have

[444] The use of the negator *u* with verb forms in Imperfective in Taghzut is not common. In Hmed, it is considered grammatical, but the use of *ula* or *la* is more common.

originated from the verb ‘to be’, which in this case marks the Imperfective. However, it is only found in negation contexts, and is not used in affirmative Imperfective. The preverbal negator *(u)la* is special in that it does not obligatorily cause clitic fronting (cf. Section 12.5). Such use of *la* has not been found in other parts of Senhaja. For example:

(145) *(u)la* *ṭmmahar-eġ* *š* (T)
(u)la *ẓẓaṛ-aġ* *š* (H)
NEG see:I-1S NEG
‘I don’t see.’

5.6.1.4. Prohibitive

In most Senhaja varieties, the prohibitive is built with the usual bipartite negation *u…. š/ši/šay* with the Imperfective stem of the verb (without the regular second person PNG markers: the singular form has no affixes, and the plural form has the suffix *-aṯ/ -eṯ*, as the Imperative plural). In Ketama, the preverbal negator is usually *i* with prohibitives, while the variant with *uy* is also used (albeit more rarely).[445] For example:

(146) *u* *ḵerrez* *ši* (H/Z)
i *ḵerrez* *ši* (K)
uy *ḵerrez* *ši* (K, rare)
NEG plow:I:IMP:SG NEG
‘Do not plow (SG)!’

In parts of Ketama (Talghunt, Sahel, but not frequently in Beni Aisi), it is also possible to form the prohibitive with the negator *ma* (followed by the irrealis *a*). In this case, the Aorist form of the verb is used with the usual second person (singular or plural) PNG markers, e.g.

(147) *m* *ˆa* *ˆt-ḵerz-eḏ* *š* (K-Sahel)
NEG ˆNR ˆ2-plow:A-2S NEG
‘Do not plow (SG)!’

[445] The negator *i* cannot be followed by a clitic. In this case, the negator *u* is used, followed by the clitic(s) and then by *i* (cf. Section 13.4.2).

5.6.2. Negation of ‘to be’

The verb ‘to be’ is negated like other verbal predicates, i.e. by means of the bipartite negation (*u… š*), with the preverbal negator depending on the verb MA(N) stem (and variety). The negated form of ‘to be’ is often used as a negation strategy with non-verbal predicates (cf. Section 6.1.2.2 on the nominal and Section 7.6 on the adjectival and participial predicate), and in relative clauses with non-verbal predicates.

Aorist

(148) - *(ma)š-a yyi-n š ḏi* (K)
(u) (ma)š-a yyi-n š ḏa (H)
u maš-aḏ ilin š ḏa (Z)
NEG FT-NR be:A-3P NEG here
‘They will not be here.’

Perfective[446]

(149) *u lla-n š ḏi* (K/T)
u lla-n š ḏa (H)
NEG be:P-3P NEG here
‘They are not here.’

When the reference to the past is made, the verb follows the past marker (*ara* in Ketama, *indi* in Taghzut, *ižа* in Zerqet, cf. Section 5.4.1). The negator follows the past marker in Taghzut and Zerqet. In Ketama, in the presence of *ara*, the preverbal negator *u* is normally absent. In Hmed, the special (past) stem of the verb *gelli/a* is used, which is negated as other verbal predicates:

(150) (a) *ara - lla-n š ḏi* (K)
indi u lla-n š ḏi (T)
ižа u ǧǧa-n š ḏa (Z)
PST NEG be:P-3P NEG here
(b) *u gella-n š ḏa* (H)
NEG PST:be-3P NEG here
‘They were not here.’

When ‘to be’ is used as an auxiliary verb (e.g. expressing a progressive or as a past marker), the negation can apply to the auxiliary or to the following predicate:

[446] Without the past marker, understood as a reference to the present in Western and Central Senhaja.

(151) *ara* *lla-n* *š* *ḫeddm-en* (K)
PST be:P-3P NEG work:I-3P
u *gella(-n)* *š* *ḫeddm-en* (H)
NEG PST:be(-3P) NEG work:I-3P

(152) *ara* *lla-n* *u* *ḫedd-en* *š* (K)
PST be:P-3P NEG work:I-3P NEG
gella-n *u* *ḫeddm-en* *š* (H)
PST:be-3P NEG work:I-3P NEG
'They were not working.'

The negation of 'to be' in relative clauses

When a relative clause is negated, this can be achieved by negating the verb 'to be' or the following predicate, e.g.

(153) (a) *argaz* =*aḏin* *a* *y-ella* *ši* *meqquṛ* (K)
man:EL =DIST RM 3MS-be:P NEG big:MS
(b) *argaz* =*aḏin* *a* *y-ella* *u* *meqquṛ š* (K)
argaz =*aḏin* *a* *y-ella* *ma* *meqquṛ š* (K)
aryaz =*nna* *(na)* *y-ella* *ma* *meqquṛ š* (H)
man:EL =ANP RM 3MS-be:P NEG big:MS NEG
'The man which is not big/old...'

5.6.3. Other Negation Strategies and Negative Elements

5.6.3.1. Negators *maši* and *uliš*

The single negator *maši* is mostly used for non-verbal predicates. However, it can also be used in negation of verbal predicates. In Taghzut, the single negator can be *maši* or *uliš* (also: *uniš*). With non-verbal predicates, the single negator is used to negate the entire clause. The verb can be in any aspect. Contrast the following examples:

(154) *u* *y-eḵrez* *š* (K)
u *ḏ-eḵrez* *š* (T/H)
uḏ *i-ḵrez* *š* (Z)
NEG 3MS-plow:P NEG
'He did not plow.'

(155) *maši* *i-k̲rez* (K/T/H/Z)
uliš *i-k̲rez* (T)
NEG 3MS-plow:P
'It is not that he plowed.'

The negator *maši* can be used in combination with the bipartite negation, e.g.

(156) *maši* *u* *ssn-aġ* *š* (K/H)
NEG NEG know:P-1S NEG
'It is not that I don't know.'

5.6.3.2. Negation with *u... bu*

The discontinuous negation *u... bu* is usually found with pronominalized prepositions (cf. Section 9.7.3), but can be also found with verbal predicates. The second negator *bu* is always followed by a noun (in EL) that is an object complement. For example:

(157) *u* *nna-n* *bu* *lhadra* (K/H/Z)
NEG say:P-3P NEG speech
'They did not say a word.'

(158) *u* *ṣġa-n* *bu* *abeɛɛaš* (K/H/Z)
NEG buy:P-3P NEG sheep:EL
'They did not buy a sheep.'

5.6.3.3. The use of *la... la* 'either...or'

The element *la* has different uses in Senhaja Berber. As discussed previously, in Taghzut and Hmed varieties, *la* can be used as a preverbal negator (principle or in combination with *u*) with verb forms in Imperfective. This use of *la* has not been found in other Senhaja varieties. Across Senhaja, the negator *la* can be used to negate several coordinated arguments of the verb (which is negated by the usual bipartite negation), similar to the English 'neither... nor', 'either... or'.

(159) *u* *ṣġi-ġ* *(š)* *la* *ttefaḥ* *la* *leččin* (H/K)
u *ṣġi-ġ* - *la* *ttefaḥ* *la* *leččin* (Z)
NEG buy:P-1S (NEG) NEG apple NEG orange
'I didn't buy either apples or oranges.'

When the verb form is in the Aorist following *maš-a,* both parts of the bipartite verbal negation can be absent (the postverbal negator *š* is optional). When *la* coordinates the arguments of the verb, the verb form can be in the singular or in the plural in Ketama/Taghzut/Hmed, but in the singular in Zerqet, e.g.

(160) (a) *(ma)š-a ḵešm-en (š) la Dunya la Faṭma* (K/H, *Z)
FT-NR enter:A-3P (NEG) NEG Dunia NEG Fatma
(b) *(ma)š-a ˆt-eḵšem (š) la Dunya la Faṭma* (K/H)
FT-NR ˆ3FS-enter:A (NEG) NEG Dunia NEG Fatma
(c) *u (ma)š-a ˆteḵšem la Dunya la Faṭma* (Z)
NEG FT-NR ˆ3FS-enter:A NEG Dunia NEG Fatma
'Neither Dunia nor Fatma will enter.'

5.6.3.4. Other Negative Elements

There are various negation markers which usually do not combine with the bipartite negation, and cause one of the negators (or both of them) to be absent. These negation elements include: *walu* 'nothing', *uṭqul* (negating the sentence), *ḥetta* 'not even', *ḥetta haža* 'nothing', *ḥetta yan* (K)/*igʷen* (H)/*iwwen* (Z) 'no one', *ḥed(d)* 'no one', *ɛemmeṛ* 'never', *baš ma* 'in order not to', *gaɛ* (Taghzut also *meṛṛa*) 'not at all'.

The element ***walu*** 'nothing' replaces the postverbal *š*:

(161) *u y-essen walu* (K)
u ḏ-essen walu (T/H)
uḏ i-ssen walu (Z)
NEG 3MS-know:P nothing
'He knows nothing', 'He doesn't know anything.'

(162) *(u) maš-a ww-a walu* (K)
u maš-a ḡḡ-aġ walu (Z)
NEG FT-NR do:A-1S nothing
'I will not do anything.'

There is a negative element ***uṭqul*** (Seddat/Hmed/Zerqet), *uṭqul*~*uṭgul* (Taghzut).[447] This element has not been found in Ketama. It usually stands in the beginning of the

[447] Based on the Arabic word *qul* 'to say': 'you don't say'.

sentence and negates the entire clause. It is found with verbs in different aspects. For example:

(163) *uṯqul a ḏ-tḥerrek* (S/H)
uṯqul aḏ i-tḥerrek (Z)
NEG NR 3MS-move:A
'He will not move.', 'He won't move.'

In Zerqet, when *uṯqul* is used, no other negators can be present. In Taghzut and Hmed, *uṯqul* can be combined with the postverbal negator *š*:

(164) *uṯqul maš-a ḏ-tḥerrek (š)* (H)
NEG FT-NR 3MS-move:A NEG
'He will not move.'

Following *uṯqul*, it is common to have *waš* or *ka* (these elements are usually used as markers of a yes/no question):

(165) *uṯqul waš ẓ̣ri-ġ ttilifun* (H/Z)
uṯqul ka ẓ̣ri-ġ ttilifun (H/Z)
NEG Q see:P-1S phone
'I have not seen the phone (at all).'

Another element is ***ḥetta*** 'not even' as e.g. in *ḥetta haža* ~ *ḥetta lḥis* 'not a thing', 'nothing', *ḥetta yan* (K)/ *ḥetta igʷen* (H)/ *ḥetta iwwen* (Z) 'no one', also with the indefinite *ši* followed by the Genitivei *n*: *ḥetta ši n yan* (K)/ *ḥetta ši n igʷen* (H)/ *ḥetta ši n iwwen* (Z) 'no one'.[448] When *ḥetta* is used in a sentence, the postverbal negator *š/ši/šay* is normally absent (obligatorily absent in Zerqet), although its presence is possible in Taghzut, Ketama, and Hmed. Compare:

(166) *u ẓ̣ri-ġ š* (K/H/Z)
NEG see:P-1S NEG
'I did not see.'
(167) *u ẓ̣ri-ġ ḥetta haža* (K/H/Z)
NEG see:P-1S not.even thing
'I did not see a thing', 'I saw nothing', 'I didn't see anything.'

[448] The feminine counterparts are: *ḥetta (ši n) yaṯ* (K)/ *ḥetta (ši n) igʷeṯ* (H)/ *ḥetta (ši n) iwweṯ* (Z).

(168) *u* *ẓṛi-ġ* *ḥetta* *(ši* *n)* *yan* (K)
u *ẓṛi-ġ* *ḥetta* *(ši* *n)* *iwwen* (Z)
NEG see:P-1S not.even some of one
'I did not see anyone.', 'I saw no one'.

The borrowed from Arabic *ḥed(d)* 'nobody, no one' is also used. It is not combined with the postverbal negator:

(169) *uḏ* *ufi-ġ* *ḥed(d)* (K/T/H/Z)
NEG find:P-1S nobody
'I found nobody.'

The elements *ḥetta* 'not even' and *ḥed(d)* 'nobody' can be combined: *ḥetta ḥed(d), ḥetta ši n ḥed(d)* 'nobody':

(170) *uḏ* *ufi-ġ* *ḥetta* *(ši* *n)* *ḥed(d)* (K/H/Z)
NEG find:P-1S not.even some of nobody
'I found nobody.'

The element ***ɛemmeṛ*** 'never' (cf. Section 8.6.2.2 on the pronominal suffixes that it takes) can be optionally combined with the negator *ma*, which can either follow or precede it (depending on the verb aspect and variety), and which usually does not combine with the postverbal negator *š* in Zerqet, but can take *š* in Hmed. When *ma* follows *ɛemmeṛ* with a verb form in the Aorist, it can be interpreted either as the future marker (part of *maš-a*), or the negator (or a portmanteau morpheme combining the features of both), e.g.

(171) (a) *ɛemmeṛ-ha* *maš-a* *ˆt-sali* *š* (H)
never-3FS FT-NR ˆ3FS-end:A NEG
(b) *(ma)* *ɛemmeṛ* *u* *maš-a* *ˆt-sala* (Z)
NEG never NEG FT-NR ˆ3FS-end:A
(c) *(ma)* *ɛemmeṛ* *m-a* *ˆt-sala* (Z)
NEG never NEG-NR ˆ3FS-end:A
'It (F) will never end.'

***baš ma* 'in order not to'**
In the positive sentence, *baš* is followed by the irrealis particle *a*:

(172) *baš* *a* *ḵerz-en* (pan-Snh.)
so.that NR plow:A-3P
'So that they plow.'

In the negative counterpart, *baš* is followed by *ma* (in this context, *ma* is a negator, followed by the irrealis *a* with which it coalesces) and in this case, the postverbal *š* is optional in Ketama and Hmed. In Zerqet, the postverbal *š* is not used in such contexts:

(173) *baš* *m-a* *ḵerz-en* *(š)* (K/H)
baš *m-a* *ḵerz-en* *(-)* (Z)
so.that NEG-NR plow:A-3P NEG
'So that they do not plow.'

Different from Ghomara (cf. Mourigh 2015: 331), in combination with *matta u* 'If (not)', *š* is not omitted in Ketama and Hmed, although can be omitted in Zerqet, e.g.

(174) (a) *matta* *u* *y-eḵrez* *š* *gma* (K)
if NEG 3MS-plow:P NEG brother:my
(b) *manṭṭa* *u* *ḏ-eḵrez* *š* *ašqiq* *inu* (H)
matta *uḏ* *i-ḵrez* *(š)* *ašqiq* *inu* (Z)
if NEG 3MS-plow:P NEG brother of:1S
'If my brother does not plow,...'

gaɛ

When *gaɛ* 'not at all' is in a postverbal position, the postverbal negator *š* is not omitted. In Taghzut, a synonym of *gaɛ* is *meṛṛa* that in certain contexts also means 'not at all'. In Ketama, Hmed, and Zerqet, *meṛṛa* is used to mean 'all together', 'at the same time', and is not used as a synonym of *gaɛ*.

(175) *u* *y-teffaġ* *š* *gaɛ* (K)
la *y-ṭeffeġ* *š* *gaɛ* (T)
uḏ *i-teffaġ* *š* *gaɛ* (Z)
la *y-ṭeffeġ* *š* *meṛṛa* (T)
NEG 3MS-exit:I NEG not.at.all
'He does not go out at all.'

5.7. Conclusions

The verbal complex is defined here as the verb together with the verbal clitics (pronominal clitics of the DO and IO, and the ventive *d*), and particles. Auxiliaries are also discussed here. Some of the preverbal elements trigger clitic fronting.

Verbal Particles and Negation of the Verbal Predicate

There are modal and negative particles. There are two modal particles common to Senhaja: the irrealis *a(ḏ)* and the future *(ma)š-a(ḏ)* (which is a combination of *(ma)š* and the irrealis *a(ḏ)*). Both particles signal that the action has not been realized. In Taghzut, alongside *š-a(ḏ)*, the future *lˆa(ḏ)* is sometimes used, which is a combination of *la* and the irrealis *a(ḏ)*.

There are negative particles: preverbal (*u* and others) and postverbal (*š*~*ši*~*šay*, that are usually in free variation). In specific contexts, one of the two particles can be absent. The preverbal particles are: *u* (general), *ma* used with the Aorist in Hmed, alongside the general *u*, and with prohibitives based on the Aorist, in Ketama; *la*~*ula* used with the Imperfective in Taghzut, Hmed, parts of Seddat, and (optionally) with prohibitives based on the Imperfective; *ur* used with the Perfective in parts of Seddat; the prohibitive negator *i* used in Ketama in all prohibitives, and in Seddat with prohibitives that have a fronted verbal clitic. When the verb contains a clitic, the scheme in Ketama and Seddat is *u* + CLITIC + *i* + VERB + *š*.

The negative particle *u* can be combined with the future *(ma)š-a(ḏ)* in Zerqet. In Hmed, the negative particle is optional in this case, while in Ketama, the negative particle is absent in the presence of other preverbal elements.

Besides the discontinuous negation, there are other negation strategies. The negator *maši* can be used to negate the entire clause. The negation *u* (+ VERB) + *bu* can be used with an object complement, e.g. *u nna-n bu lhadra* ‘They did not say a word.’ There are various negative elements that influence the use of the bipartite negation, e.g. *walu* ‘nothing’, *uṭqul* (negating the sentence), *ḥetta* ‘not even’, *ḥed(d)* ‘no one’, *ɛemmeṛ* ‘never’, *baš ma* ‘in order not to’, *gaɛ* (Taghzut also *meṛṛa*) ‘not at all’.

Verbal Clitics

Verbal clitics are syntactic clitics, as they are mobile and can be fronted under certain syntactic conditions. Verbal clitics include: the pronominal clitics of the DO and IO series, and the ventive clitic *d*. Although usually found with verbs, pronominal DO clitics can be also found with pseudo-verbs.

DO Clitics

The shape of the clitic pronouns depends on phonetic and syntactic context. The major distinction is between postverbal and preverbal clitics. Within postverbal clitics, there are sub-series depending on the shape of the verb that they follow:

a) following a V-final stem: most clitics are V-initial underlyingly in Ketama, Bunsar, and Seddat (and C-initial in Taghzut, Hmed, Zerqet, and Mezduy), although can be C-initial on the surface, while the third person clitics are C-initial, e.g. *i-ẓṛa=(ya)k̲* (K/B) 'he saw you (MS)', vs. *i-ẓṛa=ṯ* (pan-Snh.) 'he saw him';

b) following a C-final stem: clitics are V-initial, starting in *a-* in the first and second persons, and in *i-* in the third person, e.g. *i-ssn=ak̲* 'he knows you (MS)', *i-ssn=iṯ* 'he knows him'. Taghzut is different in that second person clitics are *i*-initial, e.g. *i-ssn=ik̲* 'he knows you (MS)';

c) following a verb subject suffix: clitics are V-initial, except for the third person, e.g. *ẓṛa-n=ak̲* (K/B) 'they saw you (MS)', *ẓṛa-n=ṯ* (panSnh.) 'they saw him'. Taghzut is different in that second person clitics are C-initial, e.g. *ẓṛa-n=ek* 'they saw you (MS)'.

The series *a* and *c* are identical in Ketama, Bunsar, and Seddat (where they are underlyingly V-initial in such context), except for the fact that pronouns in the series *a* can be realized as C-initial on the surface. The main difference between series *b* and *a/c* is in the third person.

In preverbal clitics, there is one series. The initial (underlying) vowel of the first and second person clitics is elided after the vowel of the preceding preverbal particle. The third person clitics are C-initial. The preverbal clitics differ from the postverbal series in three major points:

- in parts of Senhaja (Ketama, Taghzut, parts of Zerqet), the preverbal 1S clitic has two forms: the regular *y*, or the innovated *yṯ* (K)/*yḏ* (T/Z), used with 3MS and 3P verb forms;
- the fronted 1P clitic is *ġen* in most varieties, *hen* in Ketama, vs. postverbal *(a)neġ* (T/S/Z, dialectal) > *(a)naġ* (most varieties) > *(a)na* (Ketama);
- the fronted 3P clitic is *hen* in Ketama (as the fronted 1P) and Hmed.

IO Clitics

Morphologically, the IO clitics and pronominal suffixes belong together: the IO clitics consist of *a* + pronominal suffix. Different from the independent and DO clitic pronouns, but as pronominal suffixes, IO clitics do not distinguish gender in the third person singular. In some Senhaja varieties, the IO and DO pronominal clitics are homophonous, except for the third person. In other varieties, the DO and the IO clitics differ also in other persons. The varieties differ in what distinctions they make.

The Ventive Clitic

There is one deictic clitic in Senhaja: the ventive clitic *d*, often denoting direction toward the speaker. Its opposite, the ientive, does not occur. The ventive has different allomorphs depending on the phonological and morphological context and on the dialect. It is usually not spirantized. There is probably a relation between the deictic clitic *d* and the proximal nominal deictics. In some Senhaja varieties (most dialects of Ketama, Hmed, Bunsar, Zerqet), following C-final verb stems, the form of the ventive is *id*. In other varieties (Taghzut, Seddat, and the Sahel dialect of Ketama), the clitic remains *d* in such contexts, e.g. *i-ḵešm=id* (K/H/B/Z) vs. *i-ḵšem=d* (T/S/K-Sahel) 'he entered (here)'. In Bunsar, the fronted ventive can (optionally) follow 1P verb prefix *n-* (rather than precede it as in other Senhaja varieties), e.g. *š-a d=n-eḵšem* (pan-Snh. incl. B) ~ *š-a nˆdˆeḵšem* (B) 'We will enter'.

Pseudo-verbs

Pseudo-verbs are elements that lack the subject (PNG) markers and aspectual distinctions, but can take verbal clitics. In Senhaja, pseudo-verbs with DO clitics have been found. Examples are: *škun* 'who?' (Z), *(g)ani* 'where?' (S), *ġar* 'be careful!' (Z), *a šan* 'what's the matter with?' (T/H/Z), and the particle *(a)qa* (discussed below).

The Past Markers/Auxiliaries

Different Senhaja varieties have different markers (Ketama *ara~ala*, Taghzut *indi,* Zerqet *iža*) to make the reference to the past explicit, which are most commonly found with a verb in the Perfective. In Hmed, the past marker *g* and the verb 'to be' in the Perfective blended in one form, *gella*, which can be optionally conjugated. When used in combination with the verb in the Perfective, the past marker either makes the reference to the past explicit, or expresses a prior event in the past (the pluperfect).

The past marker is used with the Imperfective to express a continuous or habitual action in the past. The combination of the past marker (+the verb 'to be' in the Perfective in Ketama) + *š-a* + the verb in the Aorist expresses an anterior non-realized event. To make a reference to the past with a non-verbal predicate (nominal, adjectival, etc.), in Ketama, the verb 'to be' in the Perfective is used, preceded by the past marker. In Taghzut and Zerqet, following the past marker, the use of 'to be' is optional.

The Future Markers/Auxiliaries

To make the reference to the future, with a verbal predicate, the verb is used in the Aorist in combination with the irrealis particle *aḏ* or the future *(ma)š-a*. With non-verbal predicates, auxiliaries are used. There are constructions based on the verb 'to be' or on the verb 'to find'. The construction based on 'to find' has been grammaticalized as a future auxiliary in Hmed. It can take Arabic personal pronouns, although the origin of the construction is Berber. The future auxiliaries can be combined with a verbal predicate, e.g. to express an accomplished action/state in the future (with a verb in the Perfective) or a continuous action in the future (with a verb in the Imperfective). The same verbs 'to be' or 'to find' in the Imperfective can be used to express the habitual with non-verbal predicates.

The Particle and the pseudo-verb *(a)qa*

The element *(a)qa* is found across Senhaja, and occurs in different forms and meanings, also depending on the variety: its use is more restricted in some varieties than in others. In most varieties, *aqa* can take the second person DO clitics and is used as an attention-seeking device, or as a warning. In Eastern Senhaja (Zerqet/Bunsar), the particle *aqa* can be used as a marker of the relevance of the utterance for the present, and can convey probability. The pseudo-verb *qa* in Zerqet can take all DO clitics, and is usually found with non-verbal predicates, especially in locative expressions. When combined with the pronominal clitics, there are different bases depending on the variety and the person of the clitic, e.g. Bunsar *aqa-*~*aqala-*. In Zerqet, the pseudo-verb can be preceded by the presentative *ha* 'here', and has the forms *(h)aqa* (with most persons); *(h)aqay, (h)aq, qay* (with the third person clitics). With the third person clitics, there is a distinction between the distal (*aqay*) and proximal (*qay*), while *aq* is a generic, unmarked form.

6. Noun

6.1. Introduction

6.1.1. Overview

There exist two major morphological types of nouns in Senhaja: nouns with Berber affixes (the 'Berber-morphology class', or Class I), and nouns with Arabic morphology ('Arabic-morphology class', or Class II).[449] The third, much smaller class consists of nouns that lack affixes (non-affix class, or Class III).

In our database of ca. 2,000 nouns, almost 48% belong to the Arabic-morphology class. Nouns with Arabic morphology thus form an integral part of Senhaja grammar.[450] The number of Arabic loans is higher than this, as many Arabic loans are integrated and incorporated in Class I. Non-integrated loans do not accept Berber affixes. Instead, they preserve their original morphology (e.g. to mark the gender and number) and typically occur with the Arabic definite article *l-* (or its assimilated form).[451] European loans are usually integrated into Class II.

Nouns distinguish three categories: gender (masculine and feminine), number (singular and plural), and state (EL or "free" and EA or "annexed", cf. Section 6.1.1.3). State distinction is only found in Class I nouns, while gender and number can be also distinguished in other word classes.

In what follows, we first provide an overview of the main nominal categories for the various noun types (this section), give the information on the nominal predicate and its negation (Section 6.1.2), followed by a more detailed description of morphology, separate for the different noun types (Class I is treated in Section 6.2, Class II in Section 6.3, and Class III in Section 6.4). Sometimes, there is interaction between Arabic and Berber in nominal morphology. This is described in Section 6.5. Section 6.6 is devoted to the nominal deictic clitics.

[449] Cf. Kossmann 2013a: 203.

[450] Cf. Mourigh 2015: 63 for Ghomara Berber.

[451] As mentioned in the introduction (Section 1.9), this situation can be described as the *Parallel System Borrowing* (Kossmann 2010a), where some morphological processes are restricted to borrowings. In Senhaja, this happens with the borrowed nouns (as in other Berber varieties), but also with borrowed adjectives (Chapter 7).

6.1.1.1. Gender

Senhaja distinguishes two genders: masculine and feminine. In Class I countable nouns, most masculine nouns have a feminine counterpart, denoting either a difference in the natural gender (masculine vs. feminine, example 1), or in size (augmentative vs. diminutive, examples 2 and 3).[452] Some masculine/feminine pairs refer to slightly different objects (example 4).

Ex.	MS	Translation	FS	Translation	Variety
(1)	arba	boy	ṯarbaṯ	girl	most Snh.
(2)	alḥiḥ	beard	ṯalḥiḥṯ	small beard	Z
(3)	ṯaḥferṯ	hole	aḥfer	big hole	S
(4)	aḫyam	house	aḫyamṯ	room	K

Sometimes, however, the gender opposition is expressed by suppletion. Suppletive pairs are especially frequent for the non-affix class nouns, but are also encountered in other classes:

Class	MS	Translation	FS	Translation	Variety
I	aryaz	man	ṯamġarṯ	woman	H/B/Z
I	agenduz	bull	amgat	cow	K
III	gma	brother	wiyṯma	sister	K
III	baba	(my) father	yemma	mother	pan-Snh.

6.1.1.2. Number

Senhaja distinguishes two numbers for countable nouns: singular and plural, e.g.

Class	SG	Translation	PL	Translation	Variety
I	aryaz	man	iryazen	men	H/B/Z
II	lmuɛallim	teacher	lmuɛallimin	teachers	pan-Snh.

Class III nouns often lack a plural counterpart, or have suppletive plurals, or form the plural as class II nouns. Suppletive plurals are encountered in all classes. The singular

[452] In example (2), the masculine is the basic meaning, and feminine is diminutive; in example (3), the feminine is the basic meaning, and masculine is augmentative.

noun can belong to one noun class, and its suppletive plural counterpart to another noun class.

SG	Class	Translation	PL	Translation	Class	Variety
arba	I	boy	ddrari	boys	II	pan-Snh.
ṯarbaṯ	I	girl	ṯibliġin	girls	I	Z
gma	III	brother	ayṯma	brothers	III	K

Mass nouns can be either always singular or always plural, e.g.

Class	Noun	SG/PL	Translation	Variety
I	ṯaẓeḵṯ	SG	milk	H/B/Z/M
II	leḥlib	SG	milk	K
I	aman	PL	water	pan-Snh.

A few borrowed Arabic nouns expressing time distinguish the dual number (see Section 6.3.4.3):

SG	Translation	Dual	Translation	Variety
nhaṛ	one day	yumayen	two days	pan-Snh.
šheṛ	one month	šehṛayen	two months	pan-Snh.

Some nouns have three cognate forms: 1) a class II (usually masculine) singular form denoting the collective; 2) a class I (feminine) singular form denoting a unit, and 3) a class I plural denoting the plural (cf. Section 6.5.1.2). The collective presents a group of objects as a whole, while the unit noun refers to an individual item. This three-way distinction is often found in names of fruits and vegetables, but nouns belonging to other semantic domains can also have this feature, e.g.

Coll. (II)	Unit (I), FS	Unit (I), PL	Translation	Variety
tteffaḥ	(ṯ)ateffaḥṯ	(ṯ)iteffaḥin	apple	pan-Snh.
llingaṣ	(ṯ)alingaṣṯ	(ṯ)ilingaṣin	pears (sp.)	pan-Snh.
lbettiḫ	(ṯ)abettiḫṯ	(ṯ)ibettiḫin	melon	pan-Snh.
leḫyaṛ	(ṯ)aḫyaṛṯ	(ṯ)iḫyaṛin	cucumber	pan-Snh.
lqeṛṭaṣ	(ṯ)aqeṛṭaṣṯ	(ṯ)iqeṛṭaṣin	bullet	K/H

6.1.1.3. State

Senhaja nouns belonging to class I distinguish two forms, usually called *states* in Berberological literature.[453] The category called state in Berber is different from states in Semitic linguistics.[454] States in Berber are related to the syntactic context rather than to the structure of the noun phrase. The use of states is very restricted in Senhaja. There are two states, traditionally referred to as *Etat Libre*, henceforth EL, or 'Free State' (also: 'Absolute/Absolutive State'), and *Etat d'Annexion*, henceforth EA, or 'Annexed State'.[455] The change of state (when marked overtly) is marked by a change in the nominal prefix. Arabic-morphology and non-affix class nouns are not marked for state.

The EL is used in most contexts in Senhaja, such as:

- as a citation form, e.g. *argaz* (Ketama) 'man';
- as a grammatical object, e.g.

(1) *i-ẓ̣ra* *argaz* (K)
3MS-see:P man:EL
'He saw a man'.

- as a grammatical subject (whether preverbal or postverbal), e.g.

a) preverbal position

(2) *argaz* *i-k̲šem* (K)
man:EL 3MS-enter:P
'The man entered.'

b) postverbal position[456]

(3) *i-k̲šem* *argaz* (K)
3MS-enter:P man:EL
'The man entered.'

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[453] For discussion, see Galand 1964; 2002a: 287-308; Brugnatelli 1997; Mettouchi 2005; 2007; 2008; and 2014; Kossmann 2012: 70. Berber languages have been categorized as "marked Nominative" by some scholars (Sasse 1984), where the unmarked form corresponds to the Accusative, and the marked to the Nominative. On the category of case in languages of Africa, see König 2008. It has also been claimed that state distinction in Berber has no parallels in other languages (Mettouchi & Frajzyngier 2013). There is no opposition between the two states in Zenaga and in Eastern Berber.

[454] The Berber 'Annexed state' is not the same category as a construct state in Semitic languages (cf. Creissels 2006 for the definition of a construct state).

[455] We chose to use the French terminology here, in tribute to the French Berberological tradition.

[456] Different from most other Berber languages that have a state distinction, EA is not used for a postverbal subject in Senhaja. Instead, EL is used (as with preverbal subjects). This feature is shared by Senhaja with Ghomara (Mourigh 2015: 300).

- after some prenominal elements (see Section 6.5.5.5) and a limited number of prepositions (see Section 9.2.3), e.g.[457]

(4) *mul* *aḫyam* (K/S/Z)
owner house:EL
'the owner of the house'

(5) *bla* *argaz* (K)
without man:EL
'without a man'

The EA occurs in the following contexts:

- after most prepositions, e.g. after the Genitive preposition *n* 'of':

(6) *afus* *n* *urgaz* (K)
hand:EL GEN man:EA
'hand of a man'

- after the numeral 'one', e.g.

(7) *yaˆ wrgaz* (~ *yan urgaz*) (K/T)
one man:EA
'one man'.

6.1.2. The Nominal Predicate

6.1.2.1. Affirmative Contexts

Noun phrases can function as predicates.[458] In most Senhaja varieties, the predicative *ḏ* is used in this case: optionally in Taghzut and Hmed, obligatory in Zerqet. In Ketama, there is no predicative *ḏ*:

(8) (a) *argaz=aḏ* - *baba* (K)
(b) *aryaz=dda* *(ḏ)* *ḇaḇa* (H)
(c) *aryaz=yya* *ḏ* *baba* (Z)
man=PROX PRED father:my
'This man is my father.'

[457] After some prenominal elements, such as *mul* 'owner, lord', the following noun is in EL in some varieties (Ketama, Zerqet), while in Hmed and Bunsar, EL and EA are used interchangeably. Cf. Section 6.5.5.

[458] On non-verbal predicates in Berber, see Lafkioui 1999 and Lafkioui 2000.

When the predicative *ḏ* is followed by a Berber-morphology feminine noun (*ṯ*-initial), there is assimilation: *ḏ* + *ṯ* > *tˆt*, e.g.

(9) *ṯadda* *tˆ* *tamġarṯ* *inu* (H)
ṯada *tˆ* *tamġarṯ* *inu* (Z)
DEM:PROX:FS PRED wife:EL of:1S
'This is my wife.'

6.1.2.2. The Negation of the Nominal Predicate

Senhaja uses two major strategies to negate a nominal predicate: a) by means of the negated form of 'to be' (a conjugated or petrified form), especially in Western and Central varieties (Ketama/Taghzut/Hmed), in which case the negation becomes verbal; and b) by means of the Arabic negator *maši*. In Zerqet, the verb 'to be' is used mainly in reference to the past, so the strategy by means of *maši* is more common with the reference to the present. The predicative particle *ḏ* is used in both affirmative and negative contexts (optionally in Hmed and Taghzut). For example:

(10) (a) *u* *y-ella* *š* *(-)* *baba* (K)
u *ḏ-ella* *š* *(ḏ)* *ḇaḇa* (T/H)
NEG 3MS-be:P NEG (PRED) father:my
(b) *netta* *maši* - *baba* (K)
neṭṭa *maši* *(ḏ)* *ḇaḇa* (T/H)
netta *maši* *ḏ* *baba* (Z)
he NEG PRED father:my
'He is not my father.'

In Taghzut, in negation of non-verbal (including nominal) predicates, alongside *maši*, a petrified form *uliš* (also: *uniš*) can be used:

(11) *neṭṭa* *uliš* *(ḏ)* *ḇaḇa* (T)
he NEG (PRED) father:my
'He is not my father.'

This must have originated from a negated form of 'to be', but the form is no longer conjugated. In Ketama, by contrast, the verb 'to be' is conjugated also in negation of non-verbal predicates. Compare:

(12) (a) *nehnim uliš ayṯma* (T)
they NEG siblings:my
(b) *nehnim u lla-n š ayṯma* (K)
they NEG be:P-3P NEG siblings:my
'They are not my siblings.'

In Taghzut, it is also possible to use the negators *u* and *šay* together in succession to negate a non-verbal predicate, which follows *u šay*. This has not been found in other varieties:

(13) *neṭṭa u šay ḇaḇa* (T)
he NEG NEG father:my
'He is not my father.'

6.2. The Berber-morphology Noun

6.2.1. Noun Structure and Categories Expressed

The Berber-morphology nouns maximally consist of a prefix, a stem, and a suffix.[459] For example:

Prefix	Stem	Suffix	Gender/Number	Translation	Variety
a-	ḏrar	---	MS	mountain	pan-Snh.
i-	ḏrar	-en	MP	mountains	K/S/T
a-	mġar	-ṯ	FS	woman	K
ṯa-	mġar	-ṯ	FS	woman	H/Z
i-	mġar	-in	FP	women	K
ṯi-	mġar	-in	FP	women	H/Z

Masculine singular nouns in Class I usually start in the plain vowels *a* or *i*, while a minority starts in *u* or the semivowel *w*. Feminine nouns typically contain the prefix *ṯ-* (usually absent in Ketama and Taghzut outside Lqela) followed by the plain vowels *a* or *i*, while a few nouns start in *ṯu*. The following table presents the most characteristic examples: different forms of the noun *ašqiq* 'brother' and its feminine counterpart *ṯašqiqṯ* 'sister' (H/Z).

[459] The prefix is not present in all nouns. Depending on the word and the analysis (cf. below on *voyelle constante*), the initial vowel may be categorized as a prefix or as part of the stem. The suffix is usually used in FS nouns and in external plural derivation.

	MS	FS	MP	FP	Variety
EL	ašqiq	ṯašqiqṯ	išqiqen	ṯišqiqin	H/Z
EA	ušqiq	ṯešqiqṯ	išqiqen	ṯešqiqin	H/Z

Most feminine nouns have the suffix *-ṯ*, which can often be omitted in Hmed. Compare:

Prefix	Stem	Suffix	Translation	Variety
ṯa-	mġar	-ṯ	woman	Z
a-	mġar	-ṯ	woman	K
ṯa-	mġar	(-ṯ)	woman	H

The nominal prefix typically carries information about the gender (outside Ketama) and state (cf. Section 6.2.4), although not all nouns mark state. The prefix can also carry information about the number: plural nouns typically have the vowel *i-*, while singular nouns most often have the vowel *a-*. There are also singular nouns starting in *i*, which keep the initial vowel in the plural. The suffix carries information about the gender and number: most masculine plural nouns have the suffix *-en*, while most feminine nouns have the suffix *-in*.

To sum up, the categories that can (maximally) be expressed in the noun are: number, gender, and state. Each of these categories has two members: singular vs. plural, masculine vs. feminine, and EL vs. EA. These categories are expressed in the nominal affixes and in the case of number, can sometimes be expressed in the stem. The prefix can simultaneously express state, number, and gender, while the suffix expresses (again) number and gender. In the following sections, the main nominal categories (gender, number, and state) are discussed in more detail.

6.2.2. Gender and Size Derivation

As noted above, Senhaja distinguishes between two genders: masculine and feminine.[460] Gender is usually morphologically marked by means of affixes.[461] As mentioned above, gender derivation by means of affixes is possible for many Class I nouns. In the case of humans and (larger) animals, the change of affixes expresses the natural gender, e.g.

[460] The examples in this section represent the EL. For the EA, see below.

[461] The feminine noun is derived from the masculine by adding the prefix *ṯ-* and the suffix *-ṯ*. The suffix *-ṯ* can be realized as *t* in some contexts (e.g. after *n*). Some feminine nouns lack the feminine suffix.

MS	Translation	FS	Translation	Variety
aḫčiw	boy/son	aḫči(w)ṯ	girl/daughter	K
ašqiq	brother	ṯašqiqṯ	sister	H/Z
aġyul	donkey	ṯaġyulṯ	f. donkey	T/Z

In the case of smaller animals and inanimate nouns, the change of affixes usually expresses a difference in size. If a masculine noun refers to a regular-size object, the corresponding feminine noun refers to a smaller-size object (diminutive), e.g.

- *imger* ‘sickle’ ~ *imgerṯ* ‘small sickle’ (K).

If a feminine noun refers to a regular-size object, the masculine noun refers to a larger-size object (augmentative), e.g.

- *arebbiṯ* ‘bunch’ (femine noun, with the final assimilation of *ḏ*+*ṯ* > *ṯṯ* > *ṯ*, cf. Section 2.4.1.1) vs. *arebbiḏ* ‘big bunch’ (masculine, augmentative) (K).

The choice is lexical, i.e. the base noun is masculine or feminine depending on the word. It is not possible to derive a diminutive of an inherently feminine noun, or an augmentative of an inherently masculine noun. Cf. Section 6.5.2 on the internal diminutives. For some nouns that have both a masculine and a feminine form, it is not easy to decide which one is the “basic” one. Also, some masculine and feminine pairs refer to slightly different objects or have idiosyncratic meanings. Not all masculine words accept a feminine derivation. For example, the noun *izref* ‘road’ does not allow a feminine derivation in Ketama, while it is possible in Zerqet (*ṯizerfṯ* ‘small road’). The following table provides examples of diminutives.

MS	Translation	FS (DIM)	Translation	Variety
alḥiḥ	beard	ṯalḥiḥṯ	small beard	Z
amgur	sickle	ṯamgurṯ	small sickle	T/B/Z
izref	road	ṯizerfeṭ	small road	H

The following feminine nouns refer to the regular-size objects, while the corresponding masculine nouns are augmentatives.

FS	Translation	MS (AUG)	Translation	Variety
ṯaḥferṯ	hole	aḥfer	big hole	S
ṯakfišṯ	egg	akfil	big egg	Z

Sometimes, the use of diminutives and augmentatives is expressive and does not carry information about the size.[462] Feminine counterparts of some nouns can be used for expressive purposes, e.g. (Zerqet) *aḫyam* 'house' > *ṯaḫyamṯ* 'small house' or 'cozy house'. Sometimes, the masculine and feminine forms refer to different objects, e.g.

MS	Translation	FS	Translation	Variety
aġenža	ladle	ṯaġenžayṯ	spoon	Z
amġar	chief	(ṯ)amġarṯ	woman	K/H/Z
asennan	(plant's) thorn	ṯasennanṯ	(bee's) sting	H
ayelzim	pickaxe	ṯayelzimt	double-ended adze	Z
izi	fly	ṯiziṯ	gnat/mosquito	K/H/Z[463]
aḫeṛṛub	silique	ṯaḫerrubṯ	carob tree	H
aqeṣbun	stem, stalk	ṯiqṣebṯ	shin (bone)[464]	H/Z

Sometimes, the difference in gender reflects dialectal preferences, e.g.

MS	Variety	FS	Variety	Translation
aġezdis	Z	ṯaġezdist	H	rib
aḥezzam	K	ṯaḥezzamt	Z	belt, girdle
alḥiḥ	Z	ṯalḥiḥṯ	B	beard
amezzug	K	ṯimzgeṭ	T	ear
anzar	B	inzarṯ	K	nose

To sum up, gender derivation in Senhaja is used to express different oppositions including gender, size, and others.

6.2.3. Number

6.2.3.1. Introduction

Countable nouns in Senhaja have a singular and a corresponding plural form. There are two basic types of plural formation: external (change of affixes) and apophonic

[462] As in Arabic, diminutives can stress condescendence, childish talk, or involvement on the part of the speaker (cf. Caubet 1993: 132).

[463] The word *ṯiziṯ* has slightly different senses in Senhaja: 'a type of fly that stings animals' (Ketama), 'gnat' (Hmed), 'mosquito' (Zerqet). Grammatically, it is a feminine (diminutive) of *izi* 'fly'.

[464] In addition to the senses 'cane', 'stalk'.

(change of stem). The change of stem can be combined with a plural suffix. Some nouns have different plural forms used within the same dialect. The noun obligatorily agrees in number with the verbs, adjectives, and (Arabic) participles. In the plural, the gender distinction is relevant for the agreement only in Zerqet.[465] The plural form can be derived in different ways:

1) External plurals (Section 6.2.3.2):
- if the prefix is *a-* in the singular, it usually changes to *i-* in the plural for masculine nouns; for feminine nouns, the initial *ṯa-* > *ṯi-*;
- a suffix is added: most often, *-en* (sometimes *-an*) for masculine nouns and *-in* for feminine nouns;

2) Apophonic plurals are derived by a change of the stem (Section 6.2.3.3);
3) A change of stem can be combined with a plural suffix (Section 6.2.3.4).

Some examples follow:

1) External plurals

Gender	**SG**	**PL**	**Translation**	**Variety**
M	a-rgaz	i-rgaz-en	man	K
M	a-šqiq	i-šqiq-en	brother	H/B/Z
F	a-mġar-ṯ	i-mġar-in	woman	K
F	ṯ-a-šqiq-ṯ	ṯ-i-šqiq-in	sister	H/B/Z

2) Apophonic plurals

Gender	**SG**	**PL**	**Translation**	**Variety**
M	a-ġyul; a-ġyuy	i-ġyal; i-ġyay	donkey	T/Z K/H
M	a-gelzim	i-gelzam	hoe	K/T
F	ṯ-a-maras-ṯ	ṯ-i-muras	small valley	T/H
F	ṯ-a-ḫuṯam-t	ṯ-i-ḫuṯam	ring	Z[466]

3) Suffixes and a change of stem

Gender	**SG**	**PL**	**Translation**	**Variety**
M	weššen	i-weššan-en	jackal	K/T/H/B/Z
F	ṯa-weššen-t	ṯi-weššan-in	fem. jackal	Z

[465] Absence of gender agreement in the plural is also found in Moroccan Arabic.

[466] Cf. Ketama FS *a-ḫadum-ṯ*, PL *i-ḫuḍam*. In Ketama, since the feminine prefix *ṯ-* is absent, the feminine gender is not marked morphologically in apophonic plurals.

Some nouns maintain the vowel in the plural (see Section 6.2.4.2 on nouns with vowel-initial stems), e.g.[467]

	SG	PL	Translation	Variety
masc.	ul	ulawen	heart	Z-Wersan
fem.	ṯakna	ṯakniwin	co-wife	K/H

6.2.3.2. External Plurals

External plurals are derived by the addition of a plural suffix, usually combined with a change of the prefix. Most masculine nouns in Class I start in *a* in the singular that changes to *i* in the plural, while most feminine nouns in this class start in *ṯa-* that changes to *ṯi-* in the plural, e.g.[468]

Gender	SG	PL	Translation	Variety
Masc.	aryaz	iryazen	man	H/B/Z
Fem.	ṯamġarṯ	ṯimġarin	woman	H/B/Z

Nouns that start in *i* (feminine *ṯi*) in the singular, maintain *i* (*ṯi*) in the plural, e.g.

Gender	SG	PL	Translation	Variety
M	iġes	iġsan	bone	pan-Snh.
F	ṯifḏenṯ	ṯifeḏnin	toe	H/Z

Masculine nouns that start in *u* or *w* in the singular either start in *u/w* or *iw* in the plural, e.g.

MS	MP	Translation	Variety
ul	ulawen	heart	Z-Wersan
weššen	weššnan; iweššanen	jackal	Z-Bunjel; Z-Ikherruden

The only feminine *ṯu*-initial noun, *ṯurin* ‘lungs’, is always used either in the singular (Hmed) or in the plural (Ketama/Zerqet/Mezduy), depending on the variety, and has no number opposition.[469]

[467] In some vowel-initial stems, the vowel changes in the plural (Section 6.2.4.2).

[468] Some nouns maintain the vowel *a* in the plural (Section 6.2.4.2).

[469] In Bunsar, the noun *ṯurin* can have either FS or PL agreement, but in any case, it has no derived number opposition.

Masculine plural suffixes are *-(e)n* (most common) and *-an* (less common). Feminine plural suffixes are *-in* (most common) and *-en* (less common).

(1) Suffix *-en* (masculine and feminine nouns)

a) Masculine nouns

Most Class I masculine nouns (241 in our database, or 62%) form plurals with the suffix *-en*, e.g.

MS	**MP**	**Translation**	**Variety**
aḏar	iḏaren	leg	pan-Snh.
aherḏan	iherḏanen	dog	T/S/H/B/Z
iġežḏ	iġežḏen	kid goat	T/H/B/Z
issif	issifen	spider	Z

Some nouns have *y* appearing in the plural, e.g.[470]

MS	**MP**	**Translation**	**Variety**
aġerḏa	iġerḏayen	mouse	pan-Snh.
aġenža	iġenžayen	ladle	K/H/Z

For a group of nouns (cf. Section 6.5.3.2 on *Nisba* nouns) that end in *-i* in the singular, the plural forms preserve the *-i* followed by *yyen* in Hmed and Zerqet. In Ketama, Arabic-morphology plurals are preferred in this case, which are also possible in the rest of Senhaja. The difference is that Berber-morphology plurals are not used in Ketama for these lexemes, e.g.

MS (common)	**MP (K/H/Z)**	**MP (H/Z)**	**Translation**
amḫazni	(l)mḫazniyya	imḫazniyyen	police agent
aɛezri	leɛzara	iɛezriyyen	bachelor

If the noun ends in *-u* in the singular, *u* can change to *w* in the plural before the suffix *-en*. Alternatively, the *-u* is kept, followed by *wen* in the plural:

MS	**MP**	**Translation**	**Variety**
aġeddu	iġedwen	fig tree	T
amnizu	imnizuwen	rabbit young	H

[470] The semivowel *y* is also present in the feminine counterparts, e.g. *ṯaġerḏayṯ* 'f. mouse' (Zerqet).

Some plurals end in *-awen*, e.g.

MS	MP	Translation	Variety
agṯem	igeṯmawen	male cannabis plant	K
iġzer	iġezrawen	stream	K/T/S/H/B
imger	imgrawen	sickle	K/T
izref~izerf	izerfawen	road	pan-Snh.
ur	urawen	heart	M

In nouns ending in *-i*, *-i* either disappears or is changed to *y* in the plural before *-awen*:

MS	MP	Translation	Variety
issi	issawen	spider	Z
anebgi	inebgawen	guest	H/Z
ifri	iferyawen	cave	K/T/H

Some nouns end in *-iwen* in the plural, e.g.

MS	MP	Translation	Variety
afer	ifriwen	leaf	Z
ifiġer	ifiġriwen	snake	B/Z

b) Feminine nouns

Some Class I feminine nouns (13 nouns in this group, or 3,3% in our database) have the suffix *-en* (with the possible variants *ṯen*, *wen*, etc.) in the plural, often in free variation with *-in*, e.g.

Suffix	FS	FP	Translation	Variety
-en	ṯaġenžayṯ	ṯiġenžayen	spoon	B/Z
-ṯen	aḫčiṯ	iḫčiṯen[471]	girl	K
-yyen	ṯamḫazniṯ	ṯimḫazniyyen	f. police agent	H/Z
-(i)wen	(ṯ)isismi	(ṯ)isismiwen	needle	K/H

[471] Alongside *iḫčiwin, iḫči(w)ṯin*.

(2) Suffix *-an* (masculine nouns)

Some masculine plural nouns (51 in our database, or 13% in this group) take the suffix *-an*, e.g.

MS	MP	Translation	Variety
aqḏaḥ	iqeḏḥan	barrel	Z (vs. H *iqeḏḥen*)
aslem	iselman	fish	T/H/Z
iger	igran	field	K/T/M
iḵmez	iḵemzan	nail	K/T/H/B
weššen	iwešnan	jackal	H

If the noun ends in *-i* in the singular, the vowel is dropped in the plural before *-an*:

MS	MP	Translation	Variety
iṯri	iṯran	star	pan-Snh.
izi	izan	fly	pan-Snh.

If the noun ends in *-u* in the singular, the vowel either disappears or is realized as *w* in the plural before the suffix *-an*:

MS	MP	Translation	Variety
aġeddu	iġedwan	grape/fig tree	K/B
agru	igerwan	frog	K/S/B
aẓṛu	iẓṛan	stone	pan-Snh.

Plural nouns with the suffix *-an* sometimes undergo stem alternation (Section 6.2.3.4).

(3) Suffix *-in* (feminine nouns)

Most Class I feminine nouns (247 in our database, or 64% in this group) form plurals with the suffix *-in*. The feminine suffix *-ṯ* is usually dropped in the plural (but not always):

FS	FP	Translation	Variety
irket	irkin	louse	K
ṯafunasṯ	ṯifunasin	cow	T/H/M
ṯaherḏanṯ	ṯiherḏanin	fem. dog	T/S/B
ṯaqnint	ṯiqninin	fem. rabbit	Z

The feminine suffix *ṯ* (~*t* ~*ṭ*) is sometimes preserved in the plural (optionally or obligatorily, depending on the noun and the variety). This pattern is most frequently found in Ketama, e.g.

FS	**FP**	**Translation**
aḫčiṯ	iḫčiṯin[472]	girl
arbibṯ	irbibṯin	stepdaughter
iġerḏenṯ	iġerḏenṯin	scorpion
imgerṯ	imgerṯin	small sickle

Most likely, the preservation of the suffix *-ṯ* in the plural is an innovation. Consider the following masculine and feminine examples in Ketama vs. Zerqet:

Ketama = Zerqet		**Ketama**		**Zerqet**		**Translation**
MS	**MP**	**FS**	**FP**	**FS (Z)**	**FP (Z)**	
aġeḍḍaṛ	iġeḍḍaṛen	aġeḍḍaṛṯ	iġeḍḍarṯin	ṯaġeḍḍaṛṯ	ṯiġeḍḍarin	treacherous person

The suffix *ṯ-in* is also found in other Senhaja varieties. Below are some examples. Note that these nominal stems end in a vowel. This is not necessarily the case in Ketama.

FS	**FP**	**Translation**	**Variety**
ṯaɛbizat	ṯiɛbizaṯin	pinecone	Z
ṯafettut	ṯifettuṯin	piece (of meat)	H/B/Z
ṯahaya	ṯihayaṯin	spring	B
ṯamwaṯ	ṯimwaṯin	cow	S/H/B/Z
ṯasliṯ	ṯisliṯin	bride	Z
ṯažužt	ṯižužṯin	basket	Z

If the noun stem ends in *-i* in the singular, the plural form ends in *(i)-yyin* in Hmed and Zerqet (sometimes *-yyen*). In Ketama, the suffix *ṯ-in* is more common:

Hmed = Zerqet		**Ketama**		**Translation**
FS	FP	**FS**	**FP**	
ṯaɛezriṯ	ṯiɛezriyyin	aɛezriṯ	iɛezriṯin	unmarried woman

[472] This form is found among other variants, e.g. *iḫčiwin*, *iḫčiṯen*; *iḫčiwṯin*.

Some vowel-final noun stems have the final *-win* in the plural:

FS	FP	Translation	Variety
isismi	isismiwin	needle	K
ṯiwekkiṯ	ṯiwkkiwin	worm	H/Z
ṯiweṛẓiṯ	ṯiweṛẓiwin	ankle	B

Some feminine nouns whose stems end in *-i* in the singular end in *-awin* in the plural, e.g.

FS	FP	Translation	Variety
ṯanebgiṯ	ṯinebgawin	f. guest	H
ṯifriṯ	ṯifrawin	gladiolus	Z/M

Some nouns end in *-iwin* in the plural. Most of these nouns have stems ending in *-a*; this *-a* disappears in the plural. For example:

FS	FP	Translation	Variety
ṯameġra	ṯimeġriwin	wedding	H/B/Z
ameġra	imeġriwin	wedding	K
ṯaġma	ṯiġmiwin	thigh	H/B
ṯagursa	ṯigursiwin	ploughshare	B/Z
ṯahala	ṯihaliwin	springhouse	Z
ṯimzgiḏa	ṯimezgiḏiwin	mosque	H/B/Z

6.2.3.3. Apophonic Plurals

Apophonic plurals are plurals derived by a change of the nominal stem by applying a certain vowel scheme (in addition to the change of the prefix), but without the addition of the suffix.[473] In our database, almost 100 masculine nouns (25% of masculine Class I nouns) and 127 feminine nouns (32% of feminine Class I nouns) form their plurals by a change of stem. There are different types of apophonic plurals. A frequent plural pattern inserts the vowel *a* before the last consonant of the stem. Apophonic plurals can be in variation with external plurals, e.g. (Hmed):

[473] If the stem in the singular already has this scheme, it remains the same on the surface in the plural (i.e. the singular and the plural schemes may be homophonous), although it could be argued that the original (stem) vowels are substituted by the scheme vowels in the plural. On the change of the stem combined with the plural suffix, see below.

MS	FS	MP	FP	Translation
aserḏun	ṯaserḏunṯ	iserḏan∼iserḏunen	ṯiserḏunin	mule
ayelzim	ṯayelzimṯ	iyelzam	ṯiyelzimin∼ṯiyelzam	hoe/adze
aġyuy	ṯaġyulṯ	iġyay	ṯiġyulin∼ṯiġyay	donkey

(1) Insertion of *a* before the final consonant

In the following examples, the vowel *a* is inserted in the plural before the final consonant. The inserted *a* can replace *u* or *i* found in this position in the singular. This pattern can be accompanied by other modifications of the stem, such as insertion of *u* after the first consonant of the stem. This *u* can replace the *a* of the singular stem.

a) Masculine nouns

Scheme	MS	MP	Translation	Variety
...Ø > ...a	a-ḥezzem	i-ḥezzam	belt	H
...u > ...a	a-mguḏ	i-mgaḏ	cedar	K/T
...i > ...a	a-gelzim; ayelzim	i-gelzam; iyelzam	hoe	K/T/S; H/B/Z
a...Ø > u...a	a-sammer	i-summar	sunny side	H
a...u > u...a	a-saṯur	i-suṯar	beam	K

b) Feminine nouns

Scheme	FS	FP	Translation	Variety
...Ø > ...a	ṯi-segnef-t	ṯi-segnaf	needle	M
...u > ...a	ṯa-mguṭ(ˆṭ)	ṯi-mgaṭ	cedar	T
...i > ...a	ṯa-ḏwir-ṯ	ṯi-ḏwar	grapevine	H/Z
u...Ø > u...a	ṯa-qufel(-ṯ)	ṯi-qufal	button	H
a...u > u...a	a-ẖadum-ṯ	i-ẖuḏam[474]	ring	K

Some nouns have *a* before the final consonant in the singular stem. When the scheme (...)-*a* is applied to such stems, the vowel *a* does not change on the surface, although theoretically, there can be a substitution of the stem-*a* by the scheme-*a*. In some cases, there are no visible vocalic changes in the stem, and as a result, the singular and the plural are distinguished only by the change of the prefix.

[474] The gender of the noun is invisible in the plural.

a) Masculine nouns

Scheme	MS	MP	Translation	Variety
a...a > u...a	a-maras	i-muras	valley, stream	T/H vs. K *imarasen*
a...a > u...a	a-šaraf	i-šuraf	old person	K
...a (SG = PL)	a-wersay	i-wersay	mushroom	H

b) Feminine nouns

Scheme	FS	FP	Translation	Variety
a...a > u...a	ṯa-maras-ṯ	ṯi-muras	small valley/stream	T/H
u...a (SG = PL)	ṯa-ḫuṯam-t	ṯi-ḫuṯam	ring	Z
...a (SG = PL)	ṯa-geẓẓal-ṯ	ṯi-geẓẓal	kidney	Z

(2) Insertion of *a* after the final consonant

Some nouns insert the vowel *a* after the final consonant. This can be combined with other changes (e.g. *a* > *u* before the final consonant), e.g.

a) Masculine nouns

Scheme	MS	MP	Translation	Variety
...aC > uCa	a-wessar	i-wessura	old person	H

b) Feminine nouns

Scheme	FS	FP	Translation	Variety
...C > ...Ca	a-zizw-et	i-zizwa	bee	K
...C > ...Ca	ṯa-luz-et	ṯi-luza	almond	Z
...aC > ...uCa	ṯa-saf-t	ṯi-sufa	tree	T

(3) Substitution of the last vowel by *a*

Some nouns substitute the last vowel by *a*. This change can be combined with other changes (cf. the feminine example), e.g.

a) Masculine nouns

MS	MP	Translation	Variety
a-b̲žu	i-b̲ža	bark of oak tree	T
a-fiyu	i-fiya	acorn	K
a-skyu	i-skya	tree (large)	H/B

b) Feminine noun

FS	FP	Translation	Variety
ṯa-ḥanu-ṯ	ṯi-ḥuna	shop	H

6.2.3.4. Suffixes and a Change of Stem

A change of stem can be accompanied by the plural suffix. In the following examples, in addition to the plural suffix, *a* is inserted before the final consonant.

a) Masculine nouns

MS	MP	Translation	Variety
weššen	i-weššan-en	jackal	K/T/H/B/Z
a-sif	i-saff-en	river	K/T/S/H/B
a-fuḏ	i-fadd-en	knee	pan-Snh.
a-fus	i-fass-en	hand	pan-Snh.

b) Feminine nouns

FS	FP	Translation	Variety
ṯa-weššen-t	ṯi-weššan-in	fem. jackal	Z
ṯ-ifelfel-ṯ	ṯ-ifelfal-in	pepper	H

In the following feminine nouns, the plural can be analyzed in two different ways: either the insertion of *a* after the final consonant combined with the suffix *ṯ-in* (and variants), or the external plural built with the suffix *-aṯin* (and variants):

FS	FP	Translation	Variety
a-zizw-et	i-zizwa-tin	bee	K
ṯ-ilef-ṯ	ṯ-ilfa-ṯin	sow	Z
ṯ-iġežḏ-eṯ	ṯiġežḏa-ṯin	female kid goat	H
ṯ-imezg-eṯ	ṯ-imezga-ṯin	bracelet	B
ṯ-izerf-eṯ	ṯ-izerfa-ṯin	path	H
ṯ-iwes-ṯ	ṯ-iwsa-ṯin	husband's sister	S

In the following example, the vowel *a* substitutes the *i* in the singular:

FS	FP	Translation	Variety
ṯa-syi-ṯ	ṯi-sya-ṯ-in	bride	H

In some cases, the feminine plural form ends in the suffix *-ṯ*, and the plural suffix *-in* is optional, e.g.

FS	FP	Translation	Variety
a-siyyi-ṯ	i-siyya-ṯ ~i-siyya-ṯ-in	bride	K
ṯa-syi-ṯ	ṯi-sya-ṯ ~ ṯi-sya-ṯ-in	bride	H
ṯa-mwer-ṯ	ṯi-mura-ṯ ~ ṯi-mura-ṯ-in	small sickle	H

In the following plurals, the addition of the suffix *-an* leads to a morphological resyllabification: the plain vowel *u* or *i* disappears, and the plural acquires the form *i-CCC-an*.

a) Masculine nouns

MS	MP	Translation	Variety
a-fruḫ	i-ferḫ-an	cub; bird	pan-Snh.
a-mguḏ	i-megḏ-an	cedar	B
a-mgur	i-megr-an	sickle	Z
a-qebbiḏ	i-qebḏ-an	handful	H

b) Feminine noun

FS	FP	Translation	Variety
ṯa-yġum-ṯ	ṯi-yyeġm-an	camel	H

Other patterns are also found, e.g.

MS	MP	Translation	Variety
a-ḏrar	i-ḏur-an	mountain	K/S/T

6.2.3.5. Common (Masculine/Feminine) Plurals

In Ketama, genders are not always discernible in the plural. These includes regular (derived) plurals as well as suppletive plurals of nouns of all classes, and concerns nouns with natural gender or inanimate objects. The gender is not morphologically marked in apophonic plurals, e.g. *aḫaḏum-ṯ* ‘ring’, plural *iḫuḏam* ‘rings’. The gender of the plural noun has no influence on the agreement. In nouns with the natural gender (referring to male vs. female animate objects), when it is necessary to specify the gender, the words *dḳura* ‘male’ and *lanta* ‘female’ are added after the noun. For example, *afruḫ* ‘young animal’ has a plural form *iferḫan*. The feminine noun *afruḫṯ* ‘female young animal’ likewise corresponds to the plural *iferḫan*, while the specifically

feminine form *ifruḫṯin* is rare. When it is necessary to specify the gender, one uses *iferḫan dḳura* ‘male young animals’ vs. *iferḫan lanta* ‘female young animals’.[475] Schematically (CP = common plural):

MS	FS	CP = MP	MP	FP	Translation
afruḫ	afruḫṯ	iferḫan	iferḫan dḳura	iferḫan lanta (~ifruḫṯin)	young animal

Common gender terms can be used in three cases: referring to a group of males/masculine objects, referring to a mixed group, and referring to a group of females/feminine objects. Additional examples of common plurals (sometimes used alongside specifically feminine plurals) in Ketama follow.

MS	FS	CP = MP	FP	Translation
aserḏun	aserḏunṯ	iserḏan	iserḏunṯin	mule
awhar	awharṯ	iwharen	(iwhar(ṯ)in)	fox
arbib	arbibṯ	irbiben	(irbibṯin)	stepchild
aġyuy	aġyulṯ	iġyay	(iġyulṯin)	donkey

Common plurals can be found in other Senhaja varieties, as well. In Zerqet, to specify the feminine gender, the word *ṯibliġin* ‘girls’ can be used, e.g. *imddukkal* ‘friends’ (common gender) > *imddukkal ṯibliġin* (alongside FP *ṯimddukkal*) ‘female friends’ (lit. ‘friends girls’). In Hmed, either *lanta* ‘female’ or *tyumba* ‘girls’ is used, e.g. *iyyawen* ‘grandchildren’ (common gender) > *iyyawen lanta* ~ *iyyawen tymba* (alongside FP *ṯiyyawin*) ‘granddaughters’ (lit. ‘female grandchildren’ ~ ‘grandchildren girls’). Below follow a few examples of common plurals outside Ketama.

MS	FS	CP	FP	Translation	Variety
aġyul	ṯaġyušṯ	iġyal	(ṯiġyušin)	donkey	Z
amddakkʷi	ṯamddakešṯ	imddukkay	---	friend	S
afullus	ṯafullusṯ	ifullusen	ṯifullusin	hen/rooster	H
ayyaw	ṯayyaw(ḳ)ṯ	ayyawen	---	grandchild	T

[475] The same applies, for example, to the suppletive plural *ayṯma* ‘siblings’ corresponding to the singular *gma* ‘brother’ and *wiyṯma* ‘sister’ (non-affix class): *ayṯma dḳura* ‘brothers’ (lit. ‘male siblings’) vs. *ayṯma lanta* ‘sisters’ (lit. ‘female siblings’).

6.2.3.6. *Singularia Tantum* and *Pluralia Tantum*

Some nouns occur only in the singular (*singularia tantum,* sg. tant.) or only in plural (*pluralia tantum*, pl. tant.). There are dialectal differences. Mass nouns (such as liquids) can be either singular or plural. The following table lists some examples of nouns which are used only in the singular.

Singularia tantum nouns

Masc.	Translation	Variety	Fem.	Translation	Variety
aḏġes	colostrum	T/Z	(ṯ)ammarṯ	beard	K/T/H/B/Z
aḏi	grapes	K/S/H/B	ṯabġa	blackberry	T/B/Z/M
agris	ice	Pan-Snh.	ṯaš(ṯ)	holly oak	H
amayu	forest	K/H/B	ṯayḏa	pine	H/B/Z/M
iġ(ġ)eḏ	ashes	K/H/Z	ṯili	shadow	Z
ikki	curd	S/B	ṯimessi	fire	T/S/B/Z
imendi	barley	H/B/Z	ṯiskerṯ	garlic	T/H/B/Z/M

The following table lists nouns that are only used in the plural.[476]

Pluralia tantum nouns

Masc.	Translation	Variety	Fem.	Translation	Variety
aman	water	pan-Snh.	ṯiḏḏa	leech	Z (dial.)
ibeẓẓaḏen	urine	K	ṯimeḵraḏ	scissors	Z
iḫunčaṛ	snot, mucus	K	ṯiwsimin	barley stalks	Z
isusfan	saliva	H/B/Z	ṯiẓẓa	wheat spikes	B/Z
irḏen	wheat	pan-Snh.	imẓin	barley	K

The following noun is always plural in the Ikherruden dialect of Zerqet, while the singular form is found in the Wersan dialect:[477]

Lexeme	Translation	Variety (only pl.)	Variety (SG ≠ PL)
ṯiḏḏa	leech	Z-Ikherruden	Z-Wersan, sg. *ṯiḏḏiṭ*

[476] As noted previously, the gender opposition is relevant for the agreement only in Eastern Senhaja (Zerqet). However, morphologically, it is possible to distinguish between masculine plural and feminine plural: for example, feminine plurals often have the suffix *-in* as opposed to the masculine *-an* or *-en*, and they have the feminine prefix *ṯ-*. For apophonic plurals, the gender is impossible to distinguish in Ketama, while in the rest of Senhaja, feminine plurals are recognized due to the prefix *ṯ-*.

[477] In Ghomara, *tiḍḍa* is singular, and the corresponding plural form is *tiḍḍiwan* (Mourigh 2015: 73).

The following two nouns are always plural in most Senhaja, but singular in Hmed:

Lexeme	**Translation**	**Variety (pl.)**	**Variety (sg.)**
ṯurin	lungs	K/Z/M	H
inyan ~ inyen (H)	triangle pot support	K/T/S/B/Z[478]	H

6.2.4. State

6.2.4.1. Introduction

The following table presents the typical nominal prefixes in the EL and the EA in the majority of Senhaja vs. Ketama and Taghzut outside Lqela varieties.

	Majority of Senhaja				**Ketama/Taghzut outside Lqela**			
	***a*-prefix**		***i*-prefix (plurals)**		***a*-prefix**		***i*-prefix (plurals)**	
	EL	EA	EL	EA	EL	EA	EL	EA
M	*a*	*u*	*i*	*i*	*a*	*u*	*i*	*i*
F	*ṯa*	*ṯ*	*ṯi*	*ṯ/(ṯi)*	*a*	---	*i*	---/*i*

Examples follow. The masculine noun is *aryaz* (Z)/*argaz* (K) ‘man’, and the feminine noun is *ṯamġarṯ* (Z)/*amġarṯ* (K) ‘woman’.

	Zerqet				**Ketama**			
	***a*-prefix (sg.)**		***i*-prefix (pl.)**		***a*-prefix (sg.)**		***i*-prefix (pl.)**	
	EL	EA	EL	EA	EL	EA	EL	EA
M	*aryaz*	*uryaz*	*iryazen*	*iryazen*	*argaz*	*urgaz*	*irgazen*	*irgazen*
F	*ṯamġarṯ*	*ṯemġarṯ*	*ṯimġarin*	*ṯemġarin*	*amġarṯ*	*emġarṯ*	*imġarin*	*emġarin/ imġarin*

State is marked in the prefix of class I nouns. Most masculine singular class I nouns start in *a-* (77%: 347 out of 451 nouns in this category). Among these nouns, the majority change *a-* to *u-* in the EA (94%, or 325 nouns). Most class I feminine nouns (75%: 322 nouns) start in *ṯa-* in the EL (Ketama *a-*, as the initial *ṯ-* is absent). Among these, the majority (95%) drop the vowel in the EA. The remaining *a*-initial masculine nouns (23% in this category) and *(ṯ)a*-initial feminine nouns (5% in this category)

[478] Alongside *inyan*, the following forms are used in Ketama: *inyanen, inyawen, iniwin*, *iniwen*, *iniwan*.

keep the vowel *a* in EA: masculine nouns start in *wa* in the EA, and feminine nouns keep the initial *(ṯ)a*. In such nouns, *a* is considered part of the stem.[479]

There are 100 class I masculine singular nouns (22% of masculine singular nouns) that start in *i-*. The vowel remains unchanged in the EA. Without looking at the feminine counterparts, it is impossible to classify the *i* in masculine singular nouns as a prefix or part of the stem (see the following Section 6.2.4.2 on *voyelle constante*).

There are four class I masculine singular nouns (1%) that start in *u* or *w*. They remain unchanged in the EA in most Senhaja varieties. Two feminine class I nouns (0,5%) start in *ṯu-*. These nouns likewise remain unchanged in the EA.

The vast majority of class I masculine plural nouns (98,2%: 384 nouns) have the prefix *i-*. They remain unchanged in the EA. Five nouns (1,3%) start in *a-* in the plural that corresponds to *wa-* in the EA. Two nouns that start in *u~w* in the plural mark no state distinction.

The majority of class I feminine plural nouns (96,4%: 371 nouns) start in *ṯi* (Ketama *i*). Such nouns normally drop the vowel in the EA. However, some nouns remain unaltered. Thirteen feminine plural nouns (3,3%) start in *ṯa* and mark no state distinction. One feminine plural noun starts in *ṯu* and marks no state distinction.

6.2.4.2. *Voyelle Constante*

Some nouns keep the vowel in the EA. This vowel is known as *voyelle constante* in Berberological literature. In the EA, nouns whose stems start in *a-* acquire the initial *w-*, e.g. *aššin*, EA *waššin* ‘stable’ (pan-Snh.).

Penchoen (1973: 7-13) has proposed that the constant vowel can be analyzed as part of the noun stem, while the initial vowels that change are prefixes. This is the idea followed in the present work, so nouns with *voyelle constante* are analyzed as having vowel-initial stems. In our database, 22 class I masculine singular nouns have the constant vowel *a* (corresponding to *wa* in EA). In their plural counterparts, the behavior of the vowel depends on the lexeme and the dialect. In most cases, the vowel *a* is not preserved, and changes to *i*.[480] Only five masculine plural nouns have the initial *a*. That is to say, most plurals do not preserve the *voyelle constante*. Like with singular nouns with a constant vowel, the EA of the plural forms that maintain the vowel *a* starts in *wa*, e.g. *aman*, EA *waman* ‘water’ (pl. tant., pan-Snh.).

[479] For the analysis of the *voyelle constante*, as it is called in literature on Berber, see Basset 1945 [1959]: 82-88; Penchoen 1973: 7.

[480] The same situation is found in Ghomara (Mourigh 2015: 69).

Among feminine singular nouns starting in *(ṯ)a,* sixteen nouns keep *(ṯ)a* and thus remain unaltered in the EA, e.g. *ṯammenṯ* 'honey' (pan-Snh.).[481]

As mentioned above, all masculine singular nouns starting in *i* remain unaltered in the EA, e.g. *iġeṣ* (EL = EA) 'bone' (pan-Snh.). However, feminine *(ṯ)i*-initial class I nouns behave differently. Most of them drop the vowel in the EA, suggesting that *i-* is a prefix in these nouns, while some nouns keep the vowel *i*, suggesting that in these nouns, *i* is part of the stem, e.g.

***i*-pfx**				***i*-stem**		
EL	**EA**	**Transl.**	**Variety**	**(EL = EA)**	**Transl.**	**Variety**
ṯ-i-sismi	ṯ-sismi	needle	T/H/Z	ṯ-izi-ṯ	mosquito	K/H/Z

Masculine nouns starting in *u(~w)* and feminine nouns starting in *ṯu* remain unaltered in EA:

	Noun	**Transl.**	**Variety**	**Notes**
M	ul	heart	Z	Cf. K *weyyi*, T *už*, S/H/B *uy*, M *ur*
F	ṯurin	lungs	K/H/B/Z/M	

The following table summarizes the patterns. Only masculine nouns with *a*-initial stems distinguish between EL and EA.

	***a*-intial stem**		***i*-initial stem**		***u~w*-initial stem**	
	EL	EA	EL	EA	EL	EA
M	a	wa	i	i	u~w	u~w
F	ṯa	(ṯ)a	ṯi	ṯi	ṯu	ṯu

Some examples that are valid for most Senhaja varieties follow.

	***a*-stem**		**Transl.**	***i*-stem**	**Transl.**	***u~w*-stem**	**Transl.**
	EL	EA		EL = EA		EL = EA	
M	*aššin*	*waššin*	stable	*iġeṣ*	bone	*weššen*	jackal
F	*ṯammenṯ*	*ṯammenṯ*	honey	*ṯiziṯ*	mosquito	*ṯurin*	lungs

Below we treat masculine and feminine nouns separately.

[481] Note that there is a tendency to keep the initial *ṯ-* in such nouns in Ketama.

6.2.4.3. Masculine Nouns

In masculine nouns, state distinction is normally marked only in the singular, and only for nouns whose stems starts in *a*. Nouns whose stems start in *i* or *u~w*, and the majority of plural nouns do not mark the difference in state. The scheme and some typical examples representative of the majority of Senhaja follow:

Scheme	***a*-prefix**	***a*-initial stem**	***i*-initial stem**	***u~w*-initial stem**
EL	*a*	*a*	*i*	*u~w*
EA	*u*	*wa*	*i*	*u~w*
Examples	'mountain'	'stable'	'bone'	'jackal'
EL	*aḏrar*	*aššin*	*iġeṣ*	*weššen*
EA	*uḏrar*	*waššin*	*iġeṣ*	*weššen*

In masculine plural nouns (most of which start in *i*), the state distinction is usually absent. The exception is constituted by a few nouns that have *a*-initial stems that maintain the vowel in the plural. Such nouns distinguish the EA state by adding the prefix *w-*, e.g. *ayyaw* (H/Z) 'grandson', PL:EL *ayyawen*, PL:EA *wayyawen*. Plural nominal forms that start in *i* or on *u~w* do not mark the difference in state. The scheme and examples follow:

Scheme	***i*-initial pl.**	***a*-initial pl.**	***u~w*-initial pl.**
EL	*i*	*a*	*u~w*
EA	*i*	*wa*	*u~w*
Examples	'mountains'	'grandsons'	'knives'
EL	*iḏraren*	*ayyawen*	*wezzlan*
EA	*iḏraren*	*wayyawen*	*wezzlan*
Variety	K/T/S	H/Z	Z

6.2.4.4. Feminine Nouns

In feminine singular nouns, state can be marked whether the noun starts in *(ṯ)a* or in *(ṯ)i*, as both vowels can be dropped in the EA. The exception is constituted by the nouns with the *voyelle constante* that remain unaltered in the EA. The two nouns starting in *ṯu-* likewise do not mark the difference in state. The scheme and examples follow:

Scheme	***(ṯ)a*-pfx**	***(ṯ)a*-stem**	***(ṯ)i*-pfx**	***(ṯ)i-stem***	***ṯu*-stem**
EL	*(ṯ)a*	*(ṯ)a*	*(ṯ)i*	*(ṯ)i*	*ṯu*
EA	*(ṯ)*	*(ṯ)a*	*(ṯ)*	*(ṯ)i*	*ṯu*
Examples	'woman'	'honey'	'mill'	'mosquito'	'lungs'
EL	*(ṯ)amġarṯ*	*ṯammenṯ*	*ṯisirṯ*	*ṯiziṯ*	*ṯurin(ṯ)*
EA	*(ṯ)emġarṯ*	*ṯammenṯ*	*ṯsirṯ*	*ṯiziṯ*	*ṯurin(ṯ)*
Variety	pan-Snh.	pan-Snh.	H/B/Z	H/B/Z	H[482]

The vast majority of feminine plural nouns are *(ṯ)i*-initial (96,4%: 371 nouns). The singular prefix *ṯa-* normally changes to *ṯi-* in the plural, while *ṯi*-initial nouns maintain *ṯi* in the plural. Like *ṯi*-initial feminine singular nouns, most nouns drop the vowel in the EA, while some retain it; still others allow for variation. A few feminine nouns that have a constant vowel *a* in the singular, maintain the vowel in the plural. Such nouns either mark the EA by dropping the vowel, or EA remains the same as EL. The only feminine plural noun starting in *ṯu* in our database does not mark the difference in state. The scheme and examples follow:

Scheme	***(ṯ)i*-plurals**		***(ṯ)a*-plurals**		***ṯu*-plurals**
	***i*-pfx**	***i*-stem**	***a-* > Ø**	***a-* > *a-***	***u*-stem**
EL	*(ṯ)i*	*(ṯ)i*	*(ṯ)a*	*(ṯ)a*	*ṯu*
EA	*(ṯ)*	*(ṯ)i*	*(ṯ)e*	*(ṯ)a*	*ṯu*
Examples	'women'	'lice'	'co-wives'	'co-wives'	'lungs'
EL	*(ṯ)imġarin*	*ṯiššin*	*ṯaḵniwin*	*ṯaḵniwin*	*ṯurin*
EA	*(ṯ)emġarin*	*ṯiššin*	*ṯeḵniwin*	*ṯaḵniwin*	*ṯurin*
	most Snh.	Z	H/Z	K	K/Z/M

6.3. The Arabic-morphology Noun

6.3.1. Noun Structure and Categories Expressed

Nearly half of the nouns in Senhaja have Arabic morphology.[483] An Arabic-morphology noun consists of the Arabic article (*l-* or its assimilated form), the stem, and (for some feminine nouns) the suffix *-a*, for example:[484]

[482] This noun is sg. tant. in Hmed, and pl. tant. in other varieties (Ketama, Zerqet, Mezduy).

[483] Among the total number of 1931 nouns, ca. 47,5% (912 nouns) belong to class II. For comparison, in Ghomara, Arabic-morphology nouns constitute 53% (Mourigh 2015: 89).

[484] The nouns presented in this section are found across Senhaja, unless the variety is specified.

Article	Stem	Suffix	Gender, number	Translation
l-	ġul		MS	monster
l-	ġul	-a	FS	ogress

Arabic-morphology nouns distinguish two genders (masculine and feminine). Most nouns also distinguish two numbers (singular and plural), while a limited set of nouns also have a dual form. Arabic-morphology nouns do not distinguish the states.

6.3.2. The article

Arabic nouns are usually borrowed together with what is etymologically the Arabic definitive article *l*. Most European loans also appear with this article. In most cases, the article can be analyzed as part of the word and has no meaning. Their interpretation can be both definite and indefinite, e.g. *lkaṛi* 'a/the slingshot'. In some contexts, the article can be omitted.[485] Since Arabic loans usually appear with the Arabic article, we present nouns with the article in this chapter.

The assimilation of the Arabic article generally follows the same rules as in the dialectal Arabic. Thus, it is assimilated to post-alveolar consonants, e.g.

l + *t* > *tt*: *ttaman* 'price' (H *ttaman* ~ *ṯaman*), *ttuṭa* (H *ṭṭuṭa*) 'mulberry';
l + *d* > *dd*: *ddra* 'corn'; *dderhem* 'dirham';
l + *s* > *ss*: *ssferžel* 'quince' (H *ṣṣferğel* ~ *ṣṣferği*); *ṣṣaḏaqa* 'charity';
l + *z* > *zz*: *zzebda* 'butter'; *zziṭ* 'oil'; *zziṭun* 'olives'; *ẓẓṛiɛa* 'seed(s)'
l + *š* > *šš*: *ššuṛba* 'soup (type)';
l + *r* > *rr*: *ṛṛayeb* 'curd'; *ṛṛekba* 'ride'; *ṛṛemla* 'sand'.

The same rules apply to European loans that acquire the article, e.g. *ṭṭubis* 'bus'; *ddisir* 'fruit'; *dduččа* (H/Z) ~ *dduš* (K/H) 'shower'; *ṣṣabun* 'soap'. Unlike in Ghomara (cf. Mourigh 2015: 26), the Arabic article is usually assimilated to the following *č* of the noun stem in Senhaja, e.g. *ččappu* (H/Z) 'hat', *ččeṛčaṛa* (H) 'waterfall', *ččrawṭ* (H) 'old clothes', *ččabula* (K/H/Z) 'shed', *ččuklaṭ* (H) 'chocolate'.[486]

[485] In Senhaja, the absence of the article is not restricted to a few lexemes in adverbial usage, as in Tarifiyt, but is more frequent, similar to Ghomara (see Mourigh 2015).

[486] Some European loans appear without the geminated *č*, e.g. *čuppa* (pan-Snh.) 'pacifier', *čuġa* (Hmed) 'lettuce' (from Spanish). The last word appears to be shortened from Spanish *lechuga*.

With a following *ǧ/ž*, the assimilation of *l* is optional, and one often finds a variation *ǧǧ~lǧ~žž~lž*.[487] Variation can be found within the same Senhaja variety (e.g. Zerqet), although there are certain preferences depending on dialect, speaker, speech tempo, particular word, etc. In Ketama, the preferred variants are *lž* and *žž*. Consider the following examples:

- *ǧǧelda* (H) ~ *lǧelda* ~ *žželda* (K/H) ~ *lželda* 'skin';
- *ǧǧaw* ~ *lǧaw* ~ *žžaw* ~ *lžaw* (K/H) 'weather';
- *ǧǧiha* ~ *lǧiha* (H) ~*žžiha* (H) ~ *lžiha* (K/H) 'side';
- *ǧǧib* ~ *lǧib* (Z), *lǧim* (H), *lžim* (K/H) ~ *žžim* (H) 'pocket'.

6.3.3. Gender

6.3.3.1. Introduction

Like Berber-morphology nouns, Arabic-morphology nouns distinguish two genders, masculine and feminine. In the plural, gender distinction is not always made, and specifically feminine plurals are only optionally used (as with Class I nouns), while masculine plurals can be used as common plurals in three cases: to refer to masculine objects, to refer to feminine objects, and to refer to a mixed group of objects. There is no gender distinction in plural agreement in most Senhaja varieties, while it is optional in Eastern Senhaja. The gender of some Arabic loans can differ per dialect.[488] Feminine singular nouns often have the suffix *-a*, e.g.

- *ddakira* 'memory'
- *ddebza* 'slap'
- *ddenya* 'world'
- *ddeṛṛa* 'headscarf'
- *leblaṣa* 'seat, place'
- *lberwiṭa* 'cart'
- *lfuṭa* 'towel'
- *limara* 'scar'
- *lbaṭṭa* 'duck'
- *lbumba* 'pump'
- *ššefṛa* 'big knife'
- *ššebka* 'net'

Not all nouns ending in *-a* are feminine singular. This is due to the fact that the suffix *-a* can also mark the plural, e.g. *lemġarba* 'Moroccans', *lfellaḥa* 'farmers', *ṣṣṭula* 'buckets', *lektuba* 'books', *leksiba* 'goats' (H/Z). Also, some feminine nouns do not end in *-a*, e.g. *ṭṭunubin* (K/Z) ~ *ṭṭunubil* (K/H) 'car', *ṭṭḇiṣel* (H) 'small plate'.

[487] In Ghomara, one also finds variation (Mourigh 2015: 26). In Moroccan Arabic, the article *l-* usually assimilates to the following *ž* and thus yields *žž* (Heath 2002: 169).

[488] Some loans have different genders in Senhaja vs. Ghomara. The following nouns are masculine in Senhaja, but feminine in Ghomara (Mourigh 2015: 90): *llḥem* 'meat', *lkif* 'cannabis'. The following noun, by contrast, is feminine in Senhaja, but masculine in Ghomara (Mourigh 2015: 90): *leḫwa* 'valley'.

A few Arabic-morphology feminine nouns end in *-et/eṯ*, e.g.[489]

-eṯ	**Variety**	***-a***	**Variety**	**Translation**
lberrimeṯ	H	lberrima	Z	drill
rraḥbeṯ	K	rraḥba	T/B	floor
lqubbeṯ	K	---		wreath

6.3.3.2. Gender Derivation

Some nouns occur in both masculine and feminine forms. The next table demonstrates gender derivation by means of the suffix *-a*.

MS	**FS**	**Translation**	**MS**	**Translation**	**FS**	**Translation**
lḥaž	lḥağğa	pilgrim	lġul	monster	lġula	ogress
lḫiyyaṭ	lḫiyyaṭa	tailor	lwalid	father	lwalida	mother
lkeddab	lkeddaba	liar	nnsib	wife's brother	nnsiba	wife's sister

Masculine singular nouns ending in *-i* correspond to *-yy-a* in feminine, e.g.

MS	**FS**	**Translation**	**MS**	**FS**	**Translation**
l'ummi	l'ummiyya	illiterate one	lpubri	lpubriyya	poor one
lbuṛẓwaẓi	lbuṛẓwaẓiyya	rich one	šštayṛi	šštayṛiyya	bargaining one

With some lexemes, especially in Ketama and Hmed, masculine nouns are collectives, while feminine nouns refer to a unit, e.g.[490]

MS	**Translation**	**FS**	**Translation**	**Cf. Zerqet**
ṣṣabun	soap	ṣṣabuna	soap (piece)	Z *ṯaṣabunt*
ššɛaṛ	hair	ššɛɛṛa	hair (single)	Z *ṯašeɛṛurṯ*[491]
ššmaɛ	candles	ššmaɛa	candle	Z *ṯašemɛat*

[489] This is more widespread in other Berber languages, cf. Kossmann 2013a: 210. Senhaja is similar to Ghomara in this respect (Mourigh 2015: 90-91), having only few examples of the suffix *-et*.

[490] Sometimes, especially in Zerqet, instead of the class II feminine noun, a class I feminine noun is used as the unit noun, e.g. *ṣṣabun* 'soap' (class II) > *ṯaṣabunt* (class I) 'soap piece' (cf. Section 6.5.1.2).

[491] Zerqet distinguishes between *ṯašeɛṛurṯ* (class I) 'a single hair' vs. *ššeɛṛa* (class II) 'fishline'.

6.3.4. Number

Like class I, class II nouns distinguish between two numbers, singular and plural. The plural follows the Arabic pattern and is borrowed together with the base noun from Arabic. A limited set of nouns have a dual form, likewise borrowed directly from Arabic. There are external plurals and apophonic plurals. A few nouns combine the change of the stem with suffixation. As with class I nouns, there are often alternative plural forms that can be used interchangeably, and there are also dialectal differences.

6.3.4.1. External Plurals

The following suffixes can be used to form the plural of class II nouns: *-in, -a, -aṯ* (*-yy-aṯ, -ww-aṯ*). For a limited number of Spanish loans, the suffix *-s* is used. More commonly, Spanish plurals follow the patterns of other Arabic-morphology nouns.

Suffix *-in* is used to derive plurals of both masculine and feminine nouns, e.g.[492]

MS	**FS**	**PL**	**Translation**
lmɛellem	lmɛellma	lmɛellmin	master
lmuɛallim	lmuɛallima	lmuɛallimin	teacher
lwalid	lwalida	lwalidin	parent

Nouns ending in *-i* have the suffix *-yy-in* in the plural in Ketama and Hmed, which corresponds to *yy-en* in Zerqet, e.g.

MS	**FS**	**PL**	**PL (Zerqet)**	**Translation**
l'ummi	l'ummiyya	l'ummiyyin	l'ummiyyen	illiterate person
lbuṛẓwaẓi	lbuṛẓwaẓiyya	lbuṛẓwaẓiyyin	lbuṛẓwaẓiyyen	rich person
lpuḇri	lpuḇriyya	lpuḇriyyin	lpuḇriyyen	poor person

The suffix *-a* is used to derive both the plurals and the feminine singular forms. Therefore, some feminine singular and (common) plural forms are homophonous, e.g.

MS	**FS =**	**PL**	**Translation**
lfellaḥ	lfellaḥa	lfellaḥa	farmer
lḫiyyaṭ	lḫiyyaṭa	lḫiyyaṭa	tailor

Some words form plurals either with the suffix *-a* or with the suffix *-in*:

[492] Some feminine nouns also have a separate feminine plural with the suffix *-aṯ* (especially in Zerqet and Hmed).

MS	FS	PL *-a* ~	PL *-in*	Translation
lbergag	lbergaga	lbergaga	lbergagin	informer
lġeḍḍar	lġeḍḍara	lġeḍḍara	lġeḍḍarin	treacherous person

The suffix *-aṭ* is mostly used to derive plurals of feminine nouns. However, masculine nouns can take this suffix as well. Many European loans form plurals by means of this suffix. When the FS noun has the suffix *-a*, the plural suffix *-aṭ* replaces it, e.g.

FS	PL	Translation	FS	PL	Translation
lbuṭa	lbuṭaṭ	cylinder	nnemṛa	nnemṛaṭ	number
lɛerṣa	lɛerṣaṭ	garden	nnežma	nnežmaṭ	star
lgayza	lgayzaṭ	beam	ṛṛeẓẓa	ṛṛeẓẓaṭ	turban
lḥağğa	lḥağğaṭ	f. pilgrim	rrwiḍa	rrwiḍaṭ	wheel
llila	llilaṭ	night	ṭṭaṣa	ṭṭaṣaṭ	cup

Some masculine nouns take the suffix *-aṭ* in the plural:

MS	PL	Translation	MS	PL	Translation
lgaṛaž	lgaṛažaṭ	garage	ssbiṭaraṭ	ssbiṭaraṭ	hospital
lintiḫab	lintiḫabaṭ	election	ṭṭurnufis	ṭṭurnufisaṭ	screwdriver

When a singular noun ends in *-i*, the plural ends in *-yy-aṭ*:

SG	PL	Translation	SG	PL	Translation
ddividi	ddividiyyaṭ	DVD	leɛraṣi	leɛraṣiyyaṭ	field (type)
lbatri	lbatriyyaṭ	battery	ttaksi	ttaksiyyaṭ	taxi

Some (masculine) singular nouns ending in *-u* take the suffix *ww-aṭ* in the plural in Ketama and Hmed. In Zerqet, however, *-yy-aṭ* is more common, and *w-aṭ* is found in one case. For European (usually, Spanish) loans, the variant with the plural on *-s* is also found in Zerqet (albeit rarely). Consider the following examples:

SG	PL *-ww-aṭ* (K/H)	PL *-yy-aṭ, awaṭ* (Z)	PL *-s* (Z)	Translation
lbaṛku	lbaṛkuwwaṭ	lbaṛkuyyaṭ	lbaṛkus	boat
lkaḍu	lkaḍuwwaṭ	lkaḍuyyaṭ	lkaḍus[493]	present
llababu	llababuwwaṭ	llababuyyaṭ	llababus	sink
ṛṛaḍyu	ṛṛaḍyuwwaṭ	ṛṛaḍyuyyaṭ	ṛṛaḍyus	radio
ttrimbu	ttrimbuwwaṭ	ttrimbawaṭ	---	spintop

[493] In this case, *-s* is in a French loanword.

6.3.4.2. Apophonic Plurals

Many Arabic-morphology nouns have apophonic plurals. There exist many different patterns of apophonic plurals. Below we present some examples illustrating the various patterns.

CwaCC and CCayC

SG	PL	Transl.	Variety	SG	PL	Transl.	Variety
lgayza	legwayez	beam	H/B/Z	leblaṣa	leblayeṣ	place	K/H/Z
lmuṭuṛ	lemwaṭeṛ	motor	K/H/Z	leqmiğğa	leqmayež	shirt	K/H
nnemṛa	nnwameṛ	number	K/H/Z	ṛṛwiḍa	ṛṛwayeḍ	wheel	H/Z
žžakkiṭa	žžwakeṭ	jacket	K/H	šškima	šškayem	halter	K/H

CCuC and CCuCa

SG	PL	Transl.	Variety	SG	PL	Transl.	Variety
ḍḍayf	ḍḍyuf	guest	K	lemqaṣ	lemquṣa	scissors	H
lġars	leġruṣ	garden	K	lqirḍ	leqruḍa	monkey	K/H/Z
nnežma	nnžum	star	K/H/Z	ẓẓerb	zzruba	fence	K
ššahed	šš̄hud	witness	K	zzif	zzyufa	headscarf	H

CCaCC and mCaCC

SG	PL	Transl.	Variety	SG	PL	Transl.	Variety
lqendi(l)	leqnadel	lamp	K/H	lmenšaṛ	lemnašeṛ	saw	H/Z
zzeɛbula	zzɛabel	schoolbag	H/Z	lmetqeb	lemṭaqeb	chisel	H/B/Z
zzenzal	zznazel	earthquake	H	lmeqqaṣ	lemqaqeṣ	scissors	Z

CCaC, CwaC, and CyaC

SG	PL	Transl.	Variety	SG	PL	Transl.	Variety
lɛuš	leɛšaš	nest	K/H/Z	ssuq	leswaq	market	K/H/Z
žžemb	ležnaḇ	side	H	lğib	ğğyab	pocket	Z

CCaCa and CCaCi

SG	PL	Transl.	Variety	SG	PL	Transl.	Variety
leɛzri	leɛzara	bachelor	K	lfalḍa	leflaḍi	skirt	H

There are many other patterns of plural formation.

6.3.4.3. Special Cases

(1) Suffixes with a change of stem

There are also plural forms that involve both stem modification and suffixation (especially, the suffix *-an*), e.g.

SG	PL	Transl.	Variety	SG	PL	Transl.	Variety
ḍḍu, ḍḍaw	ḍḍiwan	light	K/H/Z	ssaɛi	ssuɛyan	beggar	H
lġar	lġiran	cave	K/H	ṭṭaṣ	ṭṭiṣan	cup	H
lḥažeḇ	lḥižḇan	eyebrow	H	žžaž	žžižan	glass	K/H/Z

(2) Borrowings from Standard Arabic

Some plural types are borrowed from Standard Arabic, although the singular form may be dialectal, e.g.[494]

SG	PL	Transl.	Variety	SG	PL	Transl.	Variety
ḍḍariḇa	ḍḍaṛa'iḇ	tax	H	lḥedd	lḥudud	border	K/H/Z
lɛalem	lɛulama'	scholar	K/H/Z	lwazir	lwiẓaṛa	minister	H/Z
lǧarima	lǧara'im	crime	K/H/Z	ṛṛayes	ṛṛu'asa	president	Z
lḥaž	lḥuǧǧaž	pilgrim	H	ṭṭbib	l'aṭibba	doctor	Z
lfilm	l'aflam	film	K/H/Z	lwaḫṭ	l'awqat	time	K/H/Z
llawn	l'alwan	color	K/H/Z	ssir	l'asṛaṛ	secret	K/H/Z

(3) The Dual

A small number of nouns referring to numbers or time have the dual form with the suffix *-ayen*. These words can occur without the Arabic article (in adverbial as well as non-adverbial usage).[495] The word *nhaṛ* 'day' has a suppletive dual *yumayen* 'two days'.

SG	Translation	Dual	Translation
nhaṛ	one day	yumayen	two days
šheṛ	one month	šehṛayen	two months
ɛam	one year	ɛamayen	two years
mya	hundred	mitayen	two hundred
alef	thousand	alfayen	two thousand

[494] Some plurals borrowed from the Standard Arabic include the glottal stop [ʔ], written as <'>.

[495] E.g. *lyumayn-iḏ aṣɛab yumayn g elḥayat inu* (K), *yumayen-yya aṣɛab yumayyen i lḥayat inu* (Z) 'These two days were the most difficult of my life.' The occurrence of the article *l-* depends on the specific context and reflects dialectal preferences.

(4) Singularia tantum and pluralia tantum

Some Arabic-morphology nouns occur only in the singular or in the plural. The following table lists some examples.

Sg. tant.	Translation	Pl. tant.	Translation
lemnam	dream	leflus	money
lḥafer~laṯer	footprint	leḫnafer	nose
llṯam	veil	lekṛafes	celery
lmehraz	mortar	leksiba	goats/small cattle
lpuklan	excavator	lešfaṛ	eyelashes/eyebrows
ṛṛbiɛ	grass	nnḍaḍer	glasses
ṣṣabun	soap	ššnayef	lips

6.4. Non-affix Class

Some nouns do not belong either to the Berber-morphology or to the Arabic-morphology class. They lack the Berber prefix and the Arabic article. Such nouns do not mark state, and there is no regular gender derivation. Plurals are often lacking, or are suppletive. Alternatively, the plural form belongs to the regular Berber-morphology or to the Arabic-morphology class.[496] Some (but not all) kinship nouns belong to the non-affix class, e.g. *gma* (K/S/T) 'brother' and its suppletive plural *aytma* 'siblings'. The following table lists examples of non-affix nouns outside the kinship domain. On kinship terminology, see Appendix 3.

Lexeme	Variety	Transl.	Lexeme	Variety	Transl.	Notes
b̲uḥbel	K/H/Z	life	muk̲(k̲)a	K/H/Z	owl	pl. *muk̲(k̲)aṯ*
buriš	K/H/Z	flying ant	ṭuppa	S/B/Z	rat	pl. *ṭuppaṯ*
k̲ersanna	K/H/Z	plant sp.	papaġayyu	H	parrot	Z *lbabaġa'*
buqɛas	H/Z	unripe fig	gamba	B/Z	shrimp	H *lgamba*

[496] There are some nouns that lack the Arabic article, but have Arabic-type plurals. In this case, the nouns can be considered as a sub-type of Class II.

6.5. Interaction between Arabic and Berber

6.5.1. Number and Collective-unit Noun Distinction

6.5.1.1. Interaction between Arabic and Berber in Number

There is interaction between Berber- and Arabic-morphology nouns. There are examples of class I singular nouns that have class II plurals, e.g.

SG (Class I)	PL (Class II)	Variety	Translation	Notes
aqeṛquṛ	lqraqer	H	frog	B/S/Z pl. *iqeṛquṛen*
aḫeddam	lḫeddama	K/H	worker	Z pl. *iḫeddamen*
amḫazni	lemḫazniyya	K/H	police agent	Z pl. *imḫazniyen*
aǧǧar	lǧiran~ǧǧiran	H/Z	neighbor	
awanṭiṣ	lwanṭiṣ	B/Z	glove	alongside *iwanṭiṣen*
aɛezri	leɛzara	K/H/Z	young man	
ṯahraw(k̲)ṯ	lehrawa(ṯ)	S/H/B/Z	stick, beating	alongside Z *ṯihrawin*

Arabic-morphology plurals may be suppletive to the Berber-morphology singular:

SG (Class I)	PL (Class II)	Variety	Translation	Notes
arba	ddrari	pan-Snh.	boy	
uy, weyyi	leqlub(a)	K/S/H/B	heart	Z *ul*, pl. *leqluba*

In some (rare) cases, the opposite occurs. The following nouns belong to class II in the singular, and to class I in the plural:

SG (Class II)	PL (Class I)	Variety	Translation	Notes
lmehraz	imehrazen	K/H/Z	mortar	H/B/Z also sg. *amehraz*
lġuddal	iġuddalen	Z	fig type	
lmežmaṛ	imežmaṛen	K/H/Z	charcoal pot	also pl. *lemžameṛ*

6.5.1.2. Collective-unit Noun Distinction

As mentioned in the Introduction (Section 1.9), Arabic influence on Senhaja is visible in the introduction of the collective–unit noun distinction.[497] Unmodified (Arabic-morphology masculine singular) loans are used for collectives, while a corresponding Berberized feminine noun (class I) refers to a unit (individual item). The unit noun can have a feminine plural class I form. In Zerqet, some of these nouns also have a masculine singular class I counterpart referring to an augmentative (cf. Section 6.2.2).[498] The following examples are pan-Senhaja (in Ketama, only the suffix *-ṯ* is pronounced, hence the prefix *ṯ-* is in parentheses).

Coll. MS (II) pan-Snh.	**Unit, FS (I) pan-Snh.**	**Plural, FP (I) pan-Snh.**	**AUG MS (I) Zerqet**	**Translation**
tteffaḥ	(ṯ)ateffaḥṯ	(ṯ)iteffaḥin	ateffaḥ	apple(s)
lbettiḫ	(ṯ)abettiḫṯ	(ṯ)ibettiḫin	abettiḫ	melon(s)

The feminine-derived noun may refer to a single piece of fruit, or to the fruit tree, e.g.

Collective	**Unit noun/Tree**	**Translation**
ssferžel	(ṯ)asferželṯ	quince
llimun	(ṯ)alimunṯ	lemon
lberquq	(ṯ)aberquqt	plum
tteffaḥ	(ṯ)ateffaḥṯ	apple

When the noun changes to the Berber morphology, the Arabic article is normally omitted. The exception is: *leččin* > *ṯalčinṯ* 'orange' (coll. > unit/tree).

Many collective nouns refer to fruits and vegetables, but there are also examples in other semantic domains. For example:

Coll. (II)	**Transl.**	**Unit (I: FS)**	**Transl.**	**Variety**
ssfenǧ	donuts	asfenǧet (K)~ṯasfenǧiṯ (H)	donut	K/H
llažuṛ	bricks	ṯalažuṛṯ	brick	H/Z
lqeṛṭaṣ	bullets	ṯaqeṛṭaṣṯ	bullet	K/H

[497] This feature is found in many (albeit not all) Berber languages. On this topic, see Kossmann 2008a and Kossmann 2013a: 216-218 and 282-283.

[498] The augmentatives are rare and are not used in all Senhaja varieties. Even in cases where a masculine singular class I noun is used, it does not always refer to an augmentative, but can be used as a synonym of a corresponding feminine singular noun, e.g. *abaḳur* 'early fig', *abanan* 'banana'.

6.5.2. Internal Diminutives

6.5.2.1. Introduction

While there exists a possibility to form diminutives by gender derivation (cf. Section 6.2.2), a number of nouns have internal diminutives.[499] Internal diminutives are not frequent in Senhaja, and examples are usually limited to Ketama and Hmed. Diminutives formed by gender derivation can only be made on the basis of masculine Berber-morphology nouns. Internal diminutives occur in both genders, and can be derived from both Berber and Arabic morphology nouns. Some nouns allow both an internal diminutive and gender derivation, as well as a combination of the two. This sometimes leads to a four-way distinction, as both the masculine and the feminine noun can have an internally-derived diminutive.[500] The function of internal diminutives is the same as that of derived diminutives (cf. Section 6.2.2). Thus, they can refer to a smaller-sized object, but they can also be used to add expressiveness. Just like derived diminutives, some internal diminutives may refer to a slightly different object.

Mourigh (2015: 112) argues that in Ghomara, the patterns of the internal diminutives are borrowed from Arabic and were extended to Berber-morphology nouns. In Senhaja, the number of Arabic-morphology diminutives is very limited. It is thus possible that the patterns were transferred directly from Arabic into Berber, without necessarily borrowing the Arabic internal diminutives. In what follows, we will present some examples, and describe the difference between derived and internal diminutives when they exist alongside each other. We treat internal diminutives of Arabic-morphology nouns first, followed by the Berber-morphology nouns. There is one mixed example in our database, where an Arabic-morphology noun changes to the Berber-morphology class in the diminutive form: *lḥawḍ*, dim. *aḥwiyyeḍ* (H/B) ‘vegetable garden’. [501]

6.5.2.2. Internal Diminutives of Arabic-morphology Nouns

The following table illustrates some Arabic-morphology nouns that have internal diminutives found in Ketama and Hmed. In Zerqet, these forms are not used. As follows from the table, the diminutives are based on specific vocalic patterns.

[499] This feature is shared by Senhaja with Ghomara (Mourigh 2015: 111-127), although internal diminutives seem to be more widespread in Ghomara than in Senhaja.

[500] Cf. Mourigh 2015: 115 for Ghomara.

[501] Also in Ghomara, this is very marginal (Mourigh 2015: 126).

The patterns are the same as in Moroccan Arabic. There are ca. 30 examples in this category in our database.

Lexeme	DIM	Translation	Lexeme	DIM	Translation
ḍḍell	ḍḍlila	shadow	lqehwa	leqhiwa	coffee
leblaṣa	lebliṣa	place	sṣemṭa	ṣṣmiṭa	belt
lɛeṭṭa	lɛeṭiṭa	bite	ššeṛba	ššṛiba	drink
lɛunṣaṛ	leɛniṣeṛ	water source	ṣṣṭel	ṣṣṭiyyel	bucket
lḥelwa	leḥliwa	candy	ssuq	sswiqa	market
lkas	lkwiyyes	glass	ṭṭaṣ	ṭṭwiṣ	cup
lmeskin	lemsiken	poor person	ṭṭebḅṣil	ṭṭḅiṣel	plate
lmuṭuṛ	lemwiṭeṛ	engine	ṭṭerf	ṭṭṛiyyef	piece

6.5.2.3. Internal Diminutives of Berber-morphology Nouns

There are also internal diminutives of Berber-morphology nouns. They have the same vocalic patterns as internal diminutives of Arabic-morphology nouns. Most examples are found in Hmed.

MS	MS:DIM	Translation	FS	FS:DIM	Translation
amenšaṛ	amnišeṛ	saw (two handles)	ṯimenšaṛṯ	ṯamnišeṛṯ	saw (one handle)

The noun *amenšaṛ* ‘saw with two handles’ has a feminine counterpart *ṯimenšaṛṯ* ‘saw with one handle’ (Hmed). The internally derived diminutives refer to smaller-size objects: *amnišeṛ* ‘small saw with two handles’, *ṯamnišeṛṯ* ‘small saw with one handle’.

MS	MS:DIM	Translation	FS	FS:DIM	Translation
ašekkuṛ	ašk^{w}ikeṛ	axe	ṯašekkuṛṯ	ṯašk^{w}ikeṛṯ	hatchet

Similarly, the noun *ašekkuṛ* ‘axe’ has a feminine counterpart, *ṯašekkuṛṯ* ‘hatchet’ (Hmed). The internally derived diminutives refer to smaller-size objects: *ašk^{w}ikeṛ* ‘small axe’, *ṯašk^{w}ikeṛṯ* ‘small hatchet’.

FS	FS:DIM	Translation	MS:AUG	MS:AUG:DIM	Translation
ṯašekkaṛṯ	ṯaškikeṛṯ	bag	ašekkaṛ	aškikeṛ	big bag

The noun *ṯašekkaṛṯ* (H/Z), *ašḵaṛṯ* (K) ‘bag’ is feminine and hence, a derived diminutive is impossible. The internal diminutive is *ṯaškikeṛṯ* (H/Z), *aškikeṛṯ* (K) ‘small bag’.

In Ketama and Zerqet, there is also an augmentative, *ašekkaṛ* (Z) ~ *ašk̲ar* (K) ‘a big bag’, and an augmentative of the internally-derived diminutive: *aškikeṛ* (K/Z) ‘big small bag’.[502]

FS	FS:DIM	Translation	MS:AUG	MS:AUG:DIM	Translation
ṯaḥebbuṭ	ṯaḥbibeṭ	belly	aḥebbud̲	aḥbibed̲	pregnant belly

The noun *ṯaḥebbuṭ* ‘belly’ (H) is inherently feminine. The internal diminutive is *ṯaḥbibeṭ* ‘small belly’. The masculine counterpart (augmentative), *aḥebbud̲*, refers to a ‘pregnant belly’. There is an internal diminutive of the masculine noun, *aḥbibed̲* (with a depharyngealization of *d̲*) which refers to a pregnant belly in the beginning of pregnancy, when it is just starting to get visible.

MS	MS:DIM	FS	FS:DIM	Translation
asammer	asmimer	ṯasammerṯ	ṯasmimerṯ	sunny hill side

In Hmed, there is a four-way distinction based on the word *asammer*. The word *asammer* refers to a sunny side of a big mountain (from one side to the other), where one could do farming. The internal diminutive, *asmimer*, refers to a part of *asammer*, i.e. some part of the sunny side of a big mountain.
The feminine noun *ṯasammerṯ* refers to a sunny side of a small mountain or a hill. Only the top of the mountain is under the sun, and this is where the farming can be done, while the bottom of the mountain is in the shade. The internal diminutive, *ṯasmimerṯ*, refers to a part of *ṯasammerṯ* (i.e. a part of the sunny side of a small mountain).[503]

FS	FS:DIM	MS:AUG	Translation
ṯarebbiṭ	ṯarbibeṭ	aṛebbid̲	bundle

For the basically feminine noun *ṯarebbiṭ* (K *arebbiṭ*) ‘bundle’, different derivations are found in different varieties: an internal diminutive *(ṯ)arbibeṭ* (K/H) ‘small bundle’, and an augmentative *aṛebbid̲* (K/Z) ‘big bundle’.

[502] This word can be used in a situation where for example one tries to fit a lot of things in a small bag (*ṯaškikeṛṯ*) and does not expect them to fit in. However, in the end, everything fits in and there is even some space left. In this context, one could use the augmentative of the diminutive, signifying: “That’s a surprisingly big small bag!”.
[503] See https://academia.li/gutova/asammer for an illustration.

MS	MS:DIM	FS	FS:DIM	Transl.
aqezzun	aqzizen (K/H), aqzizzun (Z)	ṯaqezzunṯ (K/H), ṯaqezzunt (Z)	(ṯ)aqzizzenṯ (K/H), ṯaqzizzunṯ (Z)	dog

In the case of *aqezzun* (pan-Snh.) ‘dog’, the feminine counterpart reflects a difference in sex. Internal diminutives refer to smaller-size dogs: *aqzizen* (K/H)~*aqezzun* (Z) ‘small male dog’, *(ṯ)aqzizenṯ* (K/H)~*ṯaqzizzunt* (Z) ‘small female dog’.

Ketama and Hmed present other examples of internal diminutives of Berber-morphology nouns. The following diminutives are derived from masculine nouns, and have no feminine counterparts.

MS	MS:DIM	Var.	Transl.	MS	MS:DIM	Var.	Transl.
aftuṯ	aftiweṯ	H	crumb	aġeṛṛaf	aġriṛef	K/H	cup
aġeddu	aġdidu	H	fig tree	akebbuḏ	akbibeḏ	K/H	coat

The following diminutives are derived from feminine nouns:

FS	FS:DIM	Var.	Transl.
ṯaḫraṣṯ	ṯaḫriyyesṯ[504]	H	earring
ṯamarasṯ	ṯamwiresṯ	H	stream
ṯayeffaḫṯ	ṯayfifaḫṯ	H	blister
(ṯ)asaɛɛat	(ṯ)aswiyyɛat	K/H	moment
ṯak^{w}sirṯ (H), aksirṯ (K)	ṯak^{w}seyyerṯ (H), aksiyyerṯ (K)	K/H	bread (piece)
ṯiḥebbiṯ (H), aḥebb^{w}iyṯ (K)	ṯiḥḇiḇiṯ (H), aḥbibet (K)	K/H	piece, unit

The remaining examples have both masculine and feminine counterparts.[505]

MS	MS:DIM	FS	FS:DIM	Translation	Var.
abeyyuḍ (H), abiḍaw (K)	aḇwiyyeḍ	ṯabeyyuṯ (H), abiḍawṯ (K)	ṯaḇwiyyeṯ (H), abwiyyeṯ (K)	white (one)	K/H
amelluy	amlilu	ṯamelluyṯ	ṯamliluṯ	white (one)	H
afruḫ	afriyyeḫ	(ṯ)afruḫṯ	(ṯ)afriyyeḫṯ	young animal	K/H
aḥeẓẓuḍ	aḥžiẓeṯ	ṯaḥeẓẓuṯ	ṯaḥžiẓeṯ	naked (one)	H
azemmur	azmimer	ṯazemmurṯ	ṯazmimerṯ	olive (tree)	H

[504] Depharyngealization (*ṣ* > *s*) in the diminutive.

[505] Compare Appendix 4 for the color terms (adjectives and nominalized forms) and their diminutives.

6.5.3. Deadjectival Nouns and Nisba Formation

6.5.3.1. Deadjectival Nouns

Some nouns are formed on the basis of borrowed Arabic adjectives (cf. Section 7.2.2). The nouns bear Berber nominal affixes. Most of such nouns are constituted by color terms (cf. Appendix 4), although there are other examples, as well.[506] The following table lists Berber-morphology nouns derived from Arabic color adjectives found in Ketama and Hmed.[507]

MS	FS	MP	FP (H)	<Adj.	Translation
abeyyuḏ	(ṯ)abeyyuṯ	ibeyyuḏen	ṯibeyyuṯin	byeḏ	white one
aḥemmur	(ṯ)aḥemmurṯ	iḥemmuren	ṯiḥemmurin	ḥmeṛ	red one
azerruq	(ṯ)azerruqṯ	izerruqen	ṯizerruqin	zraq	blue one
aṣeffar	(ṯ)aṣeffarṯ	iṣeffaren	ṯiṣeffarin	ṣfeṛ	yellow one

The diminutives derived of these color terms are (Ketama/Hmed):

MS	FS	MP	FP (H)	Translation
akḥiḥel	(ṯ)akḥiḥelṯ	ikḥiḥlen	ṯikḥiḥlin	black.one.dim
aḥmimeṛ	(ṯ)aḥmimeṛṯ	iḥmimṛen	ṯiḥmimeṛin	red.one.dim
azrireq	(ṯ)azrireqṯ	izrirqen	ṯizrirqin	blue.one.dim
aṣfifeṛ	(ṯ)aṣfifeṛṯ	iṣfifṛen	ṯiṣfifṛin	yellow.one.dim

The following noun is derived from a Berber-morphology adjective (Hmed):[508]

MS	FS	MP	FP	<Adj.	Translation
amelluy	ṯamelluyṯ	imelluyen	ṯimelluyin	melluy	white one

There are other examples of deadjectival nouns (not derived from adjectives) e.g.

MS	FS	MP	FP (H/Z)	<Adj.	Transl.	Variety
aṭuwwal	ṯaṭuwwalṯ	iṭuwwalen	ṯiṭuwwalin	ṭwil	tall one	K/H/Z
amessus	(ṯ)amessusṯ	imessusen	ṯimessusin	messus	insipid one	K/H

[506] Cf. Mourigh 2015: 135 for Ghomara. In Ghomara, color adjectives are nominalized by the Berber prefix *a-* and suffix *-aw*, e.g. *akeḥlaw* 'black one'. Suffix *-aw* is also found in Ketama (in free variation with other forms), while it is normally absent in the rest of Senhaja. An exception is constituted by the form *aẓeɛṛaw* (H/B/Z) 'a blond one'.

[507] The feminine plural forms are specific to Hmed, while Ketama employs the common plural.

[508] In Zerqet, the cognate noun is *ameğğul* 'white one', derived from the verb (not an adjective, as in Hmed) *mžul/meğğul* 'to be white'.

6.5.3.2. Unmodified and Intergrated Nisba nouns

Arabic terms ending in *-i* (the so-called *nisba* formation) are found in Senhaja. Such terms often refer to tribal affiliation, place of origin, and ethnicity.[509] The terms can preserve the original Arabic morphology: the feminine singular ends in *yy-a*, and the plural ends in *yy-in* (most Senhaja)~*yy-en* (Zerqet). If necessary to specify the feminine plural, the suffix *-aṯ* may be used (H/Z). Some *nisba* forms have apophonic plurals. The following examples are pan-Senhaja:

MS	FS	PL (K/H)	PL (Z)	Translation
ttiṭwani	ttiṭwaniyya	ttiṭwaniyyin	ttiṭwaniyyen	person from Tetouane
fasi	fasiyya	fwasa	fwasa	person from Fes
ktami	ktamiyya	ktamiyyin	ktamiyyen	person from Ketama

Some *nisba* nouns are integrated or optionally integrated into the Berber-morphology class, e.g.

- *zerqṯi* (II) ~ *azerqeṯ* (I) 'person from Zerqet' (H/Z);
- *ṣenhaži* (II) ~ *aṣenhaži* (I) 'person from Senhaja' (pan-Snh.).

In the following examples, the Berber-morphology nouns are preferred in Eastern Senhaja (Hmed and Zerqet), e.g.

MS	FS	Translation	Variety
abunṣar	ṯabunṣarṯ	person from Bunsar	H/Z
aḥemḏi	ṯaḥemḏiṯ	person from Hmed	H/Z

6.5.4. The Verbal Noun

6.5.4.1. Introduction

Verbal nouns are nouns derived from verbs and denoting the action ('the fact of X-ing').[510] In all Senhaja varieties, and especially in Western Senhaja, many verbal nouns

[509] See Druel & Grandlaunay 2008 for *Nisba* in Arabic, Marçais 1977: 112-113 for *Nisba* in Moroccan Arabic, Vycichl 1952 for *Nisba* in Berber, and Mourigh 2015: 136-137 for *Nisba* in Ghomara. Suffix *-i* in Berber adverbs is discussed in Kossmann 2013a: 129-230.

[510] On this word class in Berber, see Galand 2002b.

are borrowed from Arabic, and have a suppletive relation to Berber native verbs.[511] Arabic-morphology verbal nouns are discussed in Section 6.5.4.3. Nevertheless, some Berber-morphology verbal nouns are also found in Senhaja (more frequently in Eastern Senhaja than in Western Senhaja) (Section 6.5.4.2). Some verbs have both Berber-morphology (I) and Arabic-morphology (II) verbal nouns, resulting in doublets (Section 6.5.4.5).

6.5.4.2. Berber-morphology Verbal Nouns

Berber verbal nouns are usually derived by adding the nominal prefix (usually MS *a-*) to the verb stem. Some verb stems also acquire a plain vowel. The following table presents some Berber-morphology verbal nouns found in Hmed. They are not used in Ketama. Comparisons with Zerqet are provided.

Verb	Translation	VN (Hmed)	Notes (cf. Zerqet)
sagem	wait	asagem	=Z
ssen̲di	churn	assen̲di	not in Z
k̲mez	grate, rub	ak̲maz	=Z
wareg	dream	awareg	=Z, cf. *(t̲)awargit̲* (K/H/Z) ‘a dream’
ḫuwwef	scare	aḫuwwef[512]	not in Z
qṛed̲	break	aqrad̲	Z verbal noun *aqred̲*
ḥteš	collect grass	aḥtaš	Z verbal noun *aḥteš*
siyyes	boil	asiyyes	Z *syes*, verbal noun *asyes*
mger	harvest	amger	=Z

In a few cases, the same verb has two corresponding Berber-morphology nouns: with the MS and with the FS morphology. In this case, the MS noun usually denotes the verbal noun (action) and the FS noun has a more concrete meaning, e.g.

Verb	Transl.	Noun (MS)	Translation	Noun (FS)	Transl.	Variety
wareg	to dream	awareg	dreaming	t̲awargit̲	a dream	H/Z
mger	to harvest	amger	harvesting	t̲amgra	harvest	Z

[511] The same feature is observed in Ghomara (Mourigh 2015: 141-144). On verbal nouns in Arabic, see Marçais 1977: 83-85. See Marçais 1977: 85 on Arabic verbal nouns that take the feminine suffix *-a*, which gives them a concrete interpretation.

[512] This verbal noun is based from an Arabic borrowed verb.

The following verb has a feminine verbal noun:

Verb (Snh.)	Transl.	Noun (FS)	Variety	Transl.
k̲rez	to plow	t̲ayerza~t̲ak̲erza	H/Z (K)[513]	plowing

6.5.4.3. Arabic-morphology Verbal Nouns

The following table presents some Arabic-morphology verbal nouns found in Hmed. Comparisons with Ketama and Zerqet are provided.

Verb	Translation	VN (Hmed)	Notes (cf. Ketama and Zerqet)
ari	write	lektaba	= K/Z
azzi	run	ležri, žžri	= K; Z verb *azzel*, VN *ǧǧri*
ddu	go	lemši	= K; Z verb *ɛdu,* VN *lemši*
ekk	give	lmɛṭa	= K/Z
ɛyaṛ[514]	play	lleɛb~llɛib	= K/Z
ffaġ /e/	go out	leẖruž	= K/Z. Cf. *lẖerža* 'exit'
naġ /e/	kill	leqt̲il(a)[515]	= K/Z
seb̲	drink	ššṛib	Cf. K/Z verb *su*, VN *ššṛib, ššṛab*
serwet	thresh	ddras	= Z (alongside VN *aserwet̲*), K *ddris*
skurem	sit	luglas	= Z; cf. K *leglas*
wwet̲	hit	ḍḍeṛb	= K, alongside *ḍḍṛib*. Z VN *awwet̲*
zznez	sell	lbiɛ	= K; cf. Z verb *zzenz*, VN *lbiɛ*

Some Arabic borrowed verbal nouns have a cognate borrowed Arabic verb. Consider the following examples (Hmed):[516]

Verb	Translation	VN (Hmed)
ḥzen	grieve	lḥuzen
fellaḥ	cultivate	leflaḥa
ṭiyyeb	cook	ṭṭyab
ẓẓaḷḷ	pray	ṣṣḷa/ṣṣaḷa
uẓum	fast	ṣṣiyam

[513] In Ketama, the borrowed *leqlib* is preferred.

[514] Arabic loan unrelated to the borrowed Arabic verbal noun.

[515] The noun *leqṭil* is a verbal noun, 'killing', while *leqṭila* refers to a single action ('a killing').

[516] On the first two of these verbs, see Kossmann 2013a: 82-83 and Van den Boogert & Kossmann 1997.

6.5.4.4. Derived Arabic-morphology Verbal Nouns

Some Arabic verbal nouns are derived with the prefix *t-*. Such nouns are found in Ketama, but are rare in other Senhaja varieties. Even more Arabic verbal nouns with the prefix *t-* are found in Ghomara (Mourigh 2015: 143). Most of *t*-initial verbal nouns found in Ghomara correspond to Berber-morphology verbal nouns in Hmed and Zerqet. In Ketama, in such cases, either the Berber-morphology verbal nouns are used (which are otherwise rare) or the Arabic *t*-derived verbal nouns. Consider the following examples:

Verb (Snh.)	**Translation**	**VN (I) (Snh.)**	**VN (II) (K/Ghm.)**
derraɛ /e/	embrace	aderraɛ (K/H/Z)	ttedriɛ (K/Ghm.)
šekkem	squeal	ašekkem (H/Z), ašekkem (K)	tteškim (Ghm.)
ṛeqqaɛ /e/	mend (clothes)	aṛeqqaɛ (K/H/Z)	tteṛqiɛ (K/Ghm.)
fellaq /e/	to split	afellaq (H/Z), afelliq (K)	ttefliq (K/Ghm.)
qeṣṣeṣ	cut	aqeṣṣeṣ (K/H/Z)	tteqṣiṣ (K/Ghm.)
ḥraq /e/	burn	aḥraq (K/H/Z)	tteḥṛiq (Ghm.), cf. leḥriq (K)
šeğğaɛ /e/	encourage	ašeğğaɛ (H/Z (K))	ttesžiɛ (K/Ghm.)
šebbeṛ	catch	ašebbeṛ (H/Z)	ttešbiṛ (K/Ghm.)
ṣeffeṛ	whistle	aṣeffeṛ (K/H/Z)	tteṣfiṛ (K/Ghm.)
qeṭṭaɛ /e/	cut	aqeṭṭaɛ (H/Z)	tteqṭuɛ (Ghm.), tteqṭiɛ, tteqṭaɛ, leqtiɛ (K)

The following *t*-derived Arabic-morphology verbal nouns are (exceptionally) used also in Hmed and Zerqet, and not only in Ketama. They are found alongside Berber-morphology nouns, thus yielding doublets:

Verb (Snh.)	**Translation**	**VN (I) (K/H/Z)**	**VN (II) (K/H/Z)**
heddeḏ	threaten	ahedded	ttehdid
ẓuwweṛ	forge, fake	aẓuwweṛ	tteẓwiṛ
t'ekkeḏ	verify	at'ekkeḏ	tte'kiḏ
luwwi	roll, spin	aluwwi (K/H), aluwwa (K/Z)	ttelwiyya

6.5.4.5. Doublets: Berber- and Arabic-morphology Verbal Nouns

Some verbs have both Berber-morphology (I) and Arabic-morphology (II) verbal nouns, resulting in doublets. The following table provides some examples found in Hmed.[517] Examples in group *a* involve cognate Berber- and Arabic-morphology verbal nouns (the base verbs are cognate borrowings from Arabic); examples in group *b* involve suppletive Arabic verbal nouns (the base verbs are usually native Berber, or, as in the last example, an unrelated Arabic loan).

a) VN (I) and (II) are cognates

Verb	Translation	VN (I)	VN (II)	Notes
qyeḇ	plow	aqyaḇ	leqliḇ	K/Z verb *qleb*, VN *aqlab* (Z), *leqlib* (K/Z)
ḫḍeb	betroth	aḫḍab	leḫḍaḇa~leḫṭaba ~ ḫḫuṭuba	=Z
fhem	understand	afhem	lefhama	=Z
ḫiyyeḍ	sew	aḫiyyeḍ	leḫyaṭa	=Z

b) VN (I) and (II) are not cognates

Verb	Translation	VN (I)	VN (II)	Notes
ḵšem	enter	aḵšam	ddḫul	Z verb *ḵšem*, VN *aḵšem~ddḫul*
ḵrez	plow	ṯayerza	lḥarṯ	=Z (VN II rare in Z)
kker	get up	akkar	nnwaḏ~lfiyaq	K/Z verb *kker*, VN *lefyaq*
myeḵ	marry	amyaḵ	zzwaž	Z verb *mleḵ*, VN *amlaḵ~zzwaž*

In the following examples (Hmed), the Berber- and Arabic-morphology nouns have a slight difference in meaning.[518]

Verb	Transl.	VN (I)	Transl.	VN (II)	Transl.	Notes
qiyyes	measure	aqiyyes	measuring (of clothes)	leqyas	measuring (of money)	=K
fṛaq /e/	separate	afeṛṛaq	separating	lefṛaq	separation	=K/Z
rbaḥ /e/	win	arbaḥ	winning	rrbaḥ	profit	=Z

[517] In Ketama, normally, only Arabic-morphology verbal nouns are used.

[518] In the case of *fṛaq* /e/ 'to separate' and *rbaḥ* /e/ 'to win', Arabic-morphology nouns are not verbal nouns, as they do not refer to the act of doing something.

6.5.5. Prenominal Elements *ayṯ~bni, bu, mul, sḥab*

There are some elements that can precede nouns. The first one, *ayṯ*, of Berber origin, or its Arabic equivalent *bni*, can be translated as 'sons of'. The remaining elements (*bu, mul,* and the plural *sḥab*) are of Arabic origin, and can be translated as 'owner(s)/possessor(s) of'.

The Elements *ayṯ~bni*

The element *ayṯ (~ay)* is used for tribal affiliation. It may be translated as 'sons/people/those of'. Unlike in Ghomara (Mourigh 2015: 136), there is no Genitive preposition *n* following *ayṯ*.[519] It must be noted that Senhaja speakers use the Berber element *ayṯ* alongside the Arabic equivalent *bni* 'sons', e.g. *ayṯ ḥmeḏ* ~ *bni ḥmeḏ* 'Those of (the tribe of) Ahmed'. The element *ayṯ* (or *bni*) is not used with all tribal names. Among the ten Senhaja tribes, it occurs seven times: *Ayṯ Bušibet, Ayṯ Seddad, Ayṯ Ḥmeḏ, Ayṯ Bunṣar, Ayṯ Bšir, Ayṯ Ḫennus, Ayṯ Mezduy*. The remaining three tribes do not contain the element *ayṯ*: *Kṯama, Ṯaġzuṯ, Zerqeṯ*.

The Elements *bu, mul, mwalin, sḥab*

The elements *bu, mul,* and the plural *sḥab* can be translated as 'owner(s)/possessor(s) of'. The elements *bu* and *mul* are normally not interchangeable, since *bu* is usually used with body parts (and describes a certain trait, characteristic), while *mul* is used in the sense 'owner, proprietor', and is typically followed by some object such as 'car', 'house', shop', etc. The element *bu* has an expressive meaning. The following noun is in EA, e.g.

- *bu (ṯ)ɛeddist* (K/S/Z) ~ *bu ṯɛeddis(ṯ)* (H), lit. 'owner of a belly', someone with an unusually big belly, i.e. someone who likes to eat a lot, or a greedy person;
- *bu ifadden* (K/S/H/Z) 'a person with (unusually big) knees'.

In Ketama and Hmed, *bu* is unmarked for gender. In Seddat and Zerqet, the feminine equivalent is *mi*, e.g. *mi ṯɛeddist* 'owner (F) of a belly' (S/Z).

The Arabic noun *mul* 'owner, lord' is used in *mul* + NOUN 'the owner of X' constructions, and is not used with body parts.[520] In Ketama and Zerqet, the noun following *mul* 'owner' is always in EL. In Hmed and Bunsar, the following noun can be either in EL or in EA.

[519] The state of the following noun is uncertain, since the element is followed by tribe names such as *Seddat, Bunsar*, etc., that are unmarked for state.

[520] See Section 8.6.2.2 on *mul* with Arabic pronominal suffixes.

MS noun: 'house owner'		FS noun: 'shop owner'		Variety
NOUN:EL	**NOUN:EA**	**NOUN:EL**	**NOUN:EA**	
mul aḫyam	---	mul aḥanut	---	K
mul aḫam	mul uḫam	mul ṯaḥanuṯ	mul ṯḥanuṯ	H
mul aḫyam	mul uḫyam	mul ṯaḥanut	mul ṯḥanut	B
mul aḫyam	---	mul ṯaḥanut	---	Z

The feminine form is *mulat* 'female owner', and the plural is *mwalin* 'owners'. These forms are rarely used in Zerqet. For the plural ('owners'), in Zerqet, rather, the element *sḥab* is used. In Hmed, on the contrary, *mwalin* is more frequent than *sḥab*, although *sḥab* (alongside its free variant *sḥabin*) is also found. Ketama and Seddat use both *mwalin* and *sḥab*. The noun *sḥab* is followed by a noun in EL. Unlike in Ghomara (Mourigh 2015: 137), *sḥab* cannot be followed by *bu* in Senhaja. Examples:

- *sḥab (ṯ)ɛeddist* ~ *sḥab* (*ṯ*)*iɛeddas* (K/H/Z) 'owners of a belly' ~ 'owners of bellies', i.e. 'people who like to eat a lot';
- *sḥab (ṯ)iḥuna* (K/S/H/Z) 'owners of shops';
- *sḥab leḥiya* (K/S/Z) ~ *mwalin leḥiya* (K/S/H) 'bearded people'.

6.6. Nominal Deictic Clitics

Most Senhaja varieties have postnominal clitics with a three-way distinction in exophoric deixis.[521] Such elements are prosodic clitics, i.e. dependent prosodically on the adjacent material, which is the preceding noun. Different from the verbal clitics, they do not undergo movement, and are thus not syntactic clitics (cf. Chapter 12 on the clitic movement, and Section 12.2 on defining syntactic clitics). The exophoric distinction in nominal clitics is: proximal (close to the speaker), medial (close to the addressee), and distal (far from both). Furthermore, most Senhaja varieties have a distinct anaphoric clitic *nna*. The anaphoric clitic can be translated into English as 'the aforementioned' (or 'that'). It refers to something that has been already mentioned previously.

[521] Deixis refers to the phenomenon of context dependence in the meaning of certain referring expressions (cf. Williams 2020). On deixis, see e.g. Lyons 1977, Anderson 1985, Agha 1996, and Levinson 2004, Levinson *et al.* 2018, Peeters *et al.* 2021. According to Diessel (1999: 6), demonstratives have two main functions, *exophoric* and *endophoric*. In the traditional view, exophoric demonstratives "indicate the relative distance of a referent in the speech situation vis-à-vis . . . the speaker's location at the time of the utterance" (Diessel 2013: 1).

Different from the rest of Senhaja, Ketama and Taghzut employ distal clitics as anaphoric.[522] The Ketama and Taghzut varieties are also special within Senhaja in that they distinguish number in deictic clitics.[523] On the relationship between nominal and verbal directional clitics, see Section 5.3.3.3.

Deictic clitics can be also attached to certain pronominal elements to form demonstrative pronouns (Section 8.4.3). However, there is not a perfect match between the postnominal clitics and the clitics found with demonstratives. The following table lists Senhaja postnominal deictic clitics. There are dialectal differences within Hmed and Bunsar varieties (represented as H1 and B1 vs. H2 and B2 in the table).[524]

Postnominal deictic clitics in Senhaja

	K	**T**	**S**	**H1/B1**	**H2/B2**	**Z/M**
	SG ≠ PL	**SG ≠ PL**	**SG = PL**	**SG = PL**	**SG = PL**	**SG = PL**
PROX	ad̲(ah), PL id̲(ah)	ad̲i, PL id̲i	(i)yya	dda(h)	(i)yya	(i)yya
MED	(da, SG = PL)	ayes, PL iyyes	ina	ddina	ina	ina[525]
DIST	ad̲in, PL id̲in	a(ye)n, PL iyyen[526]	(i)yyen	ddin(hin)	(i)yyen	(i)yyen
ANP	= DIST	= DIST	nna	nna	nna	nna

The following table provides some examples of deictic clitics following nouns:

- MS: *argaz* (K/T/S)~*aryaz* (the rest of Senhaja) ‘man’; the same clitics apply to FS *ṯameṭṭuṯ* (T)~*(ṯ)amġarṯ* (the rest of Senhaja) ‘woman’;
- MP: *irgazen* (K/T/S)~*iryazen* (the rest of Senhaja) ‘men’; the same clitics apply to FP *ṯimeṭṭuṯin* (T)~*(ṯ)imġarin* (the rest of Senhaja) ‘women’.

[522] The same phenomenon is found in Figuig and Zwara.

[523] This feature is also found in Ghomara (Mourigh 2015: 240), Tasahlit (Rabhi 1994: 48), Zwara (Mitchell 1953: 376), Awjila (Van Putten 2014: 119), Zenaga (Taine-Cheikh 2018), and Ghadames (Kossmann 2013b: 56-57), among others.

[524] H1 stands for Tafurnut and Imugzan dialects of Hmed, while H2 is the rest (dialects that border on Bunsar: Bumsahel, Tafza, Tasemlalt, Awni). B1 stands for Tamadit dialect of Bunsar, while B2 is the rest (e.g. Iatarren, Ayn Seba, Amaktan, Luta, Zarkat, Tahaya Izem).

[525] In Mezduy, the variant *ddina* is also found, but is less frequent than *ina*.

[526] Also ayenna(h), PL iyenna(h).

Examples of nouns with deictic clitics

	***argaz* (K/T/S)~*aryaz* (rest) 'man' (MS)**	***irgazen* (K/T/S)~*iryazen* (rest) 'men' (MP)**	**Variety**
PROX	argaz = aḏ	irgazen = iḏ	K
	argaz = aḏi	irgazen = iḏi	T
	argaz = (i)yya, aryaz = (i)yya	irgazen = (i)yya, iryazen = (i)yya	S, H/B/Z/M
	aryaz = dda	iryazen = dda	H/B
MED	(argaz = da)	(irgazen = da)	(K)
	argaz = ays	irgazen = iyyes	T
	argaz = ina, aryaz = ina	irgazen = ina, iryazen = ina	S, Z/M
	aryaz = ddina	iryazen = ddina	H/B
DIST	argaz = aḏin	irgazen = iḏin	K
	argaz = a(y)n~ayenna(h)	irgazen = iyyen~iyenna(h)	T
	argaz = (i)yyen, aryaz = (i)yyen	irgazen = (i)yyen, iryazen = (i)yyen	S, H/B/Z/M
	aryaz = ddin	iryazen = ddin	H/B
ANP	= DIST		K/T
	argaz = nna, aryaz = nna	irgazen = nna, iryazen = nna	S, H/B/Z/M

Before *a*-initial clitics, Taghzut inserts *y* following all vowels (*a*, *i*, and *u*), while Ketama inserts *y* with *a*- and *i*-final nouns, and *w* with *u*-final nouns, e.g. following *lkaḍu* 'present'.

	Ketama	**Taghzut**	**Translation**
-a	arba = yaḏ	arba = yaḏi	this boy
-i	imessi = yaḏ	ṯimessi = yaḏi	this fire
-u	lkaḍu = waḏ	lkaḍu = yaḏi	this present

In other varieties, there are no *a*-initial clitics. When the medial clitic *ina* (S/Z/M) follows a V-final noun, it is realized as *yna*, e.g. *arba = yna* 'that (MED) boy', *ṯimessi = yna* 'that (MED) fire', *lkaḍu = yaḏ* 'that (MED) present' (S/Z/M).

When a V-initial clitic follows a noun that ends in the *-eC* sequence, schwa may be preserved or elided, e.g.

- *irgazen = iḏ(i)* ~ *irgazn = iḏ(i)* (K (T)) (PROX) 'these men';
- *iryazen = ina* ~ *iryazn = ina* (Z) (MED) 'those men'.

Some nouns that only appear in fixed expressions (adverbial phrases) take deictic clitics that do not appear with regular nouns, e.g.

- the clitic *=an* in Ketama: *agemmaḏ=an* ‘the opposite side’;
- the clitic *=in* in Hmed/Zerqet: *ayemmaḏ=in* (H), *agemmaḏ=in* (Z) ‘the opposite side’;
- the clitic *=a* in Zerqet: *agemmaḏ=a* ‘the opposite side’.

6.7. Conclusions

There are two major morphological types of nouns in Senhaja: Class I, or the Berber-morphology class, and Class II, the Arabic-morphology class. Class I nouns have Berber morphology, while Class II nouns preserve their original morphology and occur with the Arabic definitive article *l-*. European loans are usually integrated into Class II. The third, much smaller class consists of nouns that lack affixes (Class III, or non-affix class). Nouns distinguish gender, number, and state.

Gender: There are two genders, masculine and feminine. In Class I nouns, most masculine nouns have a feminine counterpart, denoting either a difference in the natural gender or in size (augmentative vs. diminutive). Some masculine/feminine pairs refer to slightly different objects. Sometimes, the gender opposition is expressed by suppletion.

Number: Senhaja distinguishes two numbers: singular and plural. Class III nouns often lack a plural counterpart, or have suppletive plurals, or form the plural as class II nouns. Mass nouns can be either always singular or always plural. A few borrowed Arabic nouns distinguish the dual number.

State: Class I nouns distinguish two forms (states) related to the syntactic context, traditionally referred to as *Etat Libre* (EL, or ‘Free State’), and *Etat d’Annexion* (EA, or ‘Annexed State’). The use of states is restricted in Senhaja. The EL is used in most contexts, while the EA occurs after most prepositions and after the numeral ‘one’. When marked, the change of state is marked by a change in the nominal prefix. Not all nouns mark the state overtly.

Noun phrases can function as predicates. Most Senhaja varieties employ the predicative *ḏ* is this case (obligatory in Zerqet, optional in Taghzut and Hmed).

In Ketama, there is no predicative *ḏ*. The negation of a nominal predicate is usually achieved either by a negated form of the verb 'to be' (especially in Western and Central Senhaja), or by a single negator *maši* (from Arabic), especially in Zerqet. Taghzut also has other means to negate a nominal predicate (e.g. with the invariable *uliš* or by *u šay* used in succession before the predicate).

The Berber-morphology Noun (Class I)

The Berber-morphology nouns maximally consist of a prefix, a stem, and a suffix. The three nominal categories (number, gender, and state) are expressed in the affixes and in the case of number, can sometimes be expressed in the stem. The prefix can simultaneously express state, number, and gender, while the suffix expresses (again) number and gender. Most masculine singular nouns start in *a-* (a few in *u*~*w*). Different from Tarifiyt (cf. Introduction, Section 1.8.1.1), there is no initial vowel drop in EL of some nouns (e.g. Snh. *afus* vs. Tarifiyt *fus* 'hand'). Feminine nouns typically have the prefix *ṯ-* (absent in Ketama and parts of Taghzut) and the suffix *-ṯ* (which can be freely omitted in Hmed), e.g. *ṯ-amġar-ṯ* 'woman' (most varieties), *amġar-ṯ* (K/T), *ṯ-amġar* (H). Following the prefix *ṯ-*, most feminine nouns have *a* or *i*, while a few nouns have *u*.

There are two basic types of plural formation: external (change of affixes) and apophonic (change of stem). Nouns can have multiple plural forms used within the same dialect. In external plurals, in masculine nouns, if the prefix is *a-* in the singular, it usually changes to *i-* in the plural, and the suffix *-en* is added, e.g. *a-šqiq* 'brother', PL *i-šqiq-en* (H/Z). Singular nouns starting in *i* keep the vowel in the plural. For feminine nouns, the initial *ṯa-* > *ṯi-*, and the suffix *-in* is added, e.g. *ṯ-a-šqiq-ṯ* 'sister' > *ṯ-i-šqiq-in* (H/Z). In the plural, the feminine suffix *ṯ* usually disappears, although some nouns keep it (especially in Western Senhaja).

Apophonic plurals are derived by a change of the stem, e.g. *a-ġyul* 'donkey' > *i-ġyal* (Z). In Ketama, due to the absence of the prefix *ṯ-*, the gender is not always discernible in the apophonic plurals. A change of stem can be combined with a plural suffix, e.g. *weššen* 'jackal'> *i-weššan-en*. Some nouns maintain the vowel in the plural, e.g. *ṯaḵna* 'co-wife' > *ṯaḵniwin* (K/H), *ul* 'heart' > *ulawen* (Z).

Some nouns keep the vowel in the EA. This vowel is known as *voyelle constante*. In the EA, nouns whose stems start in *a-* acquire the initial *w-*, e.g. *aššin*, EA *waššin* 'stable'. In plural, the behavior of the vowel depends on the lexeme and the dialect. In most cases, *a* is not preserved, and changes to *i*. The EA of the plural forms that maintain *a* starts

in *wa*, e.g. *aman*, EA *waman* ‘water’ (pl. tant.). Masculine nouns starting in *u(~w)* and feminine nouns starting in *ṯu* remain unaltered in EA.

The Arabic-morphology Noun (Class II)

Class II nouns consist of the Arabic article (*l-* or its assimilated form), the stem, and (for some feminine nouns) the suffix *-a*, e.g. *lwalid* ‘father’, *lwalid-a* ‘mother’**.** Not all nouns ending in *-a* are feminine singular. A few Arabic-morphology feminine nouns end in *-et/eṯ*, but this is rare in comparison with other Berber varieties. Arabic-morphology nouns do not distinguish the states.

Most nouns distinguish two numbers. The plural in Class II nouns follows the Arabic pattern and is borrowed together with the base noun. There are external plurals and apophonic plurals. The plural suffixes include: *-in, -a, -aṯ* (*-yy-aṯ, -ww-aṯ*), *-an*, e.g. *lmuɛallim* ‘teacher’ > *lmuɛallimin*; *lkaḍu* ‘present’ > *lkaḍu-yy-aṯ*. For a limited number of Spanish loans, the suffix *-s* is used. More commonly, Spanish plurals follow the patterns of other Class II nouns. There exist many different patterns of apophonic plurals, e.g. *ḍḍayf* ‘guest’ > *ḍḍyuf*; *nnežma* ‘star’ > *nnžum*, etc. A few nouns combine the change of the stem with suffixation, e.g. *lġar* ‘cave’ > *lġiran*. A limited set of nouns referring to numbers or time have a dual form, likewise borrowed from Arabic. The dual form has the suffix *-ayen*, e.g. *ɛam* ‘year’ > *ɛamayen* ‘two years’. Some Arabic-morphology nouns occur only in the singular or in the plural.

Non-affix Class

Some nouns do not belong either to the Berber-morphology or to the Arabic-morphology class. They lack the Berber prefix and the Arabic article. Such nouns do not mark state, and there is no regular gender derivation. Plurals are often lacking, or are suppletive. Alternatively, the plural form belongs to the regular Berber-morphology or to the Arabic-morphology class. Some (but not all) kinship nouns belong to the non-affix class, e.g. *gma* (K/S/T) ‘brother’ and its suppletive plural *ayṯma* ‘siblings’.

Interaction between Berber- and Arabic-morphology Nouns

There is interaction between Arabic and Berber in nominal morphology. There are examples of class I singular nouns that have class II plurals, e.g. *aḫeddam* ‘worker’, PL *lḫeddama*. Class II plurals may be suppletive to the Berber-morphology singular, e.g.

arba ‘boy’, PL *ddrari*. A certain number of nouns have a collective form with Arabic morphology (masculine singular), while a corresponding Berberized feminine noun refers to a unit (individual item). The unit noun can in turn have a feminine plural class I form. For example: *tteffaḥ* (collective) ‘apples’, *ṯateffaḥṯ* ‘apple’ (unit), *ṯiteffaḥin* ‘apples’ (plural).

Internal Diminutives

While for Class I nouns, there exists a possibility to form diminutives by gender derivation, a number of nouns have internal diminutives with an Arabic apophonic pattern. Derivation of internal diminutives is not productive in Senhaja, and there is a limited number of examples, mostly from Ketama and Hmed. For Class II nouns, the diminutive is borrowed together with the base noun from Arabic, e.g. *ḍḍell* ‘shadow’ > *ḍḍlila*. For Class I nouns, the diminutive is formed within Berber, following an Arabic pattern (PAT borrowing). Sometimes, there is a four-way distinction, if a Berber-morphology noun has a gender opposition, e.g. 1) (for inherently masculine nouns, with derived feminine diminutives) *amenšaṛ* ‘two-handles saw’, dim. *amnišeṛ*, FS *ṯimenšaṛṯ* ‘one-handle saw’, dim. *ṯamnišeṛṯ*; *ašekkuṛ* ‘axe’, dim. *ašk^{w}ikeṛ*, FS *ṯašekkuṛṯ* ‘hatchet’, dim. *ṯašk^{w}ikeṛṯ*; 2) (for inherently feminine nouns, with masculine augmentatives) *ṯašekkaṛṯ* ‘bag’, dim. *ṯaškikeṛṯ*, MS *ašekkaṛ* ‘a big bag’, dim. *aškikeṛ* ‘a surprisingly spacious small bag’; *ṯaḥebbuṭ* ‘belly’, dim. *ṯaḥbibeṭ*, MS *aḥebbuḍ* ‘pregnant belly’, dim. *aḥbibeḍ* ‘a small pregnant belly’.

Deadjectival Nouns and Nisba

Some nouns are formed on the basis of (borrowed Arabic) adjectives. The nouns bear Berber nominal affixes. Most of such nouns are constituted by color terms, e.g. *byeḍ* (Ar. adj.) ‘white’ > *abeyyuḍ* ‘a white one’. Arabic borrowed *nisba* nouns (referring to tribal affiliation, place of origin, and ethnicity) can be integrated into Class I, e.g. *zerqṯi* (II) ~ *azerqeṭ* (I) ‘person from Zerqet’ (H/Z); *ṣenhaži* (II) ~ *aṣenhaži* (I) ‘person from Senhaja’ (pan-Snh.).

The Verbal Noun

Verbal nouns (denoting the action) are often borrowed from Arabic, and can have a suppletive relation to Berber native verbs (esp. in Western Snh.). Some Berber-morphology verbal nouns are also found. Berber verbal nouns are usually derived by adding the nominal prefix (MS *a-*) to the verb stem. Some verbs have two related Class I nouns: with the MS and with the FS morphology. In this case, the MS noun usually denotes the verbal noun (action) and the FS noun has a more concrete meaning, e.g. *wareg* ‘to dream’**,** *awareg* ‘dreaming’, *ṯawargiṯ* ‘a dream’. Some verbs have both Class I

and Class II (cognate or suppletive) verbal nouns, resulting in doublets, e.g *ḵšem* ‘to enter’, *aḵšam* (I) ~ *ddḫul* (II) ‘entering’. Some Arabic verbal nouns are formed with the prefix *t-*, e.g. *qeṣṣeṣ* ‘to cut’, *aqeṣṣeṣ* (most Snh.), *tteqṣiṣ* (K). Such nouns are found in Ketama, but are rare in other Senhaja varieties. This feature is shared by Ketama with Ghomara.

Pre-nominal Elements **ayṯ~bni, bu, mul, sḥab**

There are some elements that can precede nouns. The first one, *ayṯ*, of Berber origin, or its Arabic equivalent *bni*, can be translated as ‘sons of’. Both are used by Senhaja speakers, e.g. *ayṯ ḥmeḏ* ~ *bni ḥmeḏ* ‘Those of (the tribe of) Ahmed’. The remaining elements (*bu, mul,* and the plural *sḥab*) are of Arabic origin, and can be translated as ‘owner(s)/possessor(s) of’; *bu* is usually used with body parts, and describes a certain trait, characteristic (e.g. *bu ṯɛeddist* lit. ‘owner of a belly’, i.e. ‘someone with a big belly’), while *mul* is used in the sense ‘owner, proprietor’, and is typically followed by some object. In Ketama and Zerqet, the noun following *mul* ‘owner’ is always in EL. In Hmed and Bunsar, the following noun can be either in EL or in EA, e.g. *mul aḫyam* (K/Z), *mul aḫam~mul uḫam* (H) ‘the owner of the house’.

Nominal Deictic Clitics

Most Senhaja varieties have postnominal clitics with a three-way distinction in exophoric deixis. The exophoric distinction is: proximal, medial, and distal. Most Senhaja varieties have a distinct anaphoric clitic *nna*, while Ketama and Taghzut employ distal clitics as anaphoric. Ketama and Taghzut are also special in that they distinguish number in deictic clitics (as in Ghomara, but different from the rest of Senhaja and Tarifiyt).

7. Adjectives and Participles

7.1. Introduction

Adjectives and participles share a number of features, and thus it is practical to discuss them together. Both adjectives and participles distinguish three forms (masculine singular, feminine singular, and plural, with the possibility to mark feminine plural in Eastern Senhaja/Zerqet), and besides, Arabic adjectives and participles share the same suffixes to mark the gender and number. Also, both adjectives and participles can modify the head noun. There are also some differences: Arabic adjectives are frequently nominalized across Senhaja, while nominalization of Berber adjectives is less frequent. There are further differences in the possibility to conjugate adjectives and participles (Section 7.4), and in the use and marking of adjectives and participles in relative constructions (Section 7.5). Adjectives (but not participles) allow for the formation of diminutives in some Senhaja varieties. All these issues are discussed in this chapter. In this section, we provide background information on the adjectival and participial predicate. See Section 7.6 on the negation of such predicates.

The Adjectival and Participial Predicate

An adjective or a participle phrase can function as predicates. There is no linking element (predicative *ḏ*), that is used with nominal predicates (obligatory in Zerqet, optionally in Hmed, cf. Section 6.1.2). Contrast the following examples (Hmed): *(a)* has a nominal predicate, and *(b)* has an adjective predicate (the use of the predicative *ḏ* is ungrammatical):

(1) (a) *aḫam* *inu* *(ḏ)* *aḇerḵan* (H)
house:MS of:1S PRED black.one:MS

(b) *aḫam* *inu* *kḥel* (H)
house:MS of:1S black:MS
'My house is black'.

Other examples with adjectival predicates follow:

(2) *aḫyam* =*aḏ* *qḏim* (K)
house:EL =PROX old:MS
'This house is old.'

(3) *netta* *meẓẓi* (Z)
he small:MS
'He is small/young.'
(4) *nekki(ni)* *meqquṛ* (K/T/H/Z)
I big:MS
'I am old.'

Participles function like adjectives syntactically, e.g.

(5) *netta* *gales* (pan-Snh.)
he sitting:MS
'He is sitting' (also: 'He is not working, unoccupied, idle.')

(6) *netta* *maši* (K/T/H)
he walking:MS
'He is/was walking.'

(7) *waš* *ḳeğ(ği)* *mzuwwež?* (pan-Snh.)
Q you:MS married:MS
'Are you married?'

The negation of the adjectival and participial predicate is discussed in Section 7.6.

7.2. Adjectives

A separate morphological class of adjectives is not found in all Berber varieties.[527] Expression of noun attributes is carried out by various means in Berber, such as the use of verbs (regular or stative) or attributive nouns that can be used to modify the head noun. In many Berber languages, there is a distinct class of stative verbs. Stative verbs have special morphological markers (often, suffixes only) distinguishing them from the regular verbs (cf. Kossmann 2009c). In most Senhaja varieties, ancient stative verbs developed into adjectives that function syntactically in the same way as adjectives borrowed from Arabic, albeit bearing different morphological markers.

[527] There exists a debate among Berberologists about adjectives as belonging to a specific lexical category, or rather being a subcategory of nouns (e.g. Chaker 1985: 1-2, Galand 2002: 199) or verbs (Taine-Cheikh 2009a). There is also a debate about whether it is a sub-category at all. Galand 1990 discusses the diachronic development from nouns to stative verbs (*verbe d'état*) in Berber. On adjectives and suffix conjugation in Zenaga, see Taine-Cheikh 2003a, while Taine-Cheikh 2014 discusses the verb-noun distinction in Berber and its fluctuations.

There is thus a separate class of adjectives, with two subcategories: adjectives of Arabic origin, which are numerous, and adjectives of Berber origin, which is very limited in number. Similar facts are found in Ghomara (El Hannouche 2008, Mourigh 2015: 205). Lafkioui (2009d: 111) analyzes such lexemes as verbs: they might have regular PNG markers (prefixes and suffixes) when they are not used as a verb complement, and have only suffixal markers (akin to stative verbs) when they appear in combination with a verb (such as 'to become'), e.g. (Bshir, following Lafkioui 2009d: 111):

- *ṯ-aġul-eḏ meqqur* 'You became big/old.' vs.
- *ṯ-meqqur-eḏ* 'You (SG) are big/old.'

We must note that such lexemes can be conjugated (with the regular or special PNG markers) only in parts of Senhaja, while in parts of Senhaja (Ketama, Hmed), such lexemes are never conjugated. In Zerqet, it also depends on the person (cf. Section 7.4.2). When not conjugated, there are only three forms: MS (no affixes), FS (suffix *-(e)ṯ*), and one common plural form (suffix *-(e)n*), which parallels the distinction in borrowed Arabic adjectives. In this work, we analyze such lexemes as adjectives, while noting that these adjectives can be conjugated in some varieties, whether with special or regular markers.[528]

The following table summarizes the variation in Senhaja in the marking of Berber adjectives, using the phrase 'You are small/young' as example. In *(a)*, a non-conjugated adjective is used with the 2MS independent pronoun *ḵeğği* (found in most Senhaja, except for Seddat), while in *(b)* and *(c)*, the conjugated forms are used, and the gender is unmarked. In Zerqet, the three forms are not found within the same variety, but reflect dialectal preferences (cf. Section 7.4.2). The word for 'small' is *mezzi* or *meẓẓi(y)* in most Senhaja varieties, while Hmed employs the adjective *meččiḵ*.

The phrase 'you are young' in Senhaja

	Ketama	**Taghzut**	**Seddat**	**Hmed**	**Bunsar**	**Zerqet**
a) No person marking	*ḵeğği mezzi*	*ḵeğği mezzi*	---	*ḵeğği meččiḵ*	*ḵeğği mezzi*	*ḵeğği meẓẓi*
b) Special PNG	---	*mezzi-ḏ*	---	---	*mezziy-eḏ*	*meẓẓiy-eḏ*
c) Regular PNG	---	---	*ṯ-meẓẓi-ḏ*	---	---	*ṯ-meẓẓiy-eḏ*

[528] See Section 7.4 for more details on conjugated adjectives.

As follows from the table, in Ketama and Hmed, adjectives are never conjugated, while in Seddat, cognate lexemes are always obligatorily conjugated with regular PNG affixes and are distinguished from regular verbs only by the lack of aspectual distinctions. For Seddat, such words are best analyzed as defective verbs. Finally, in some varieties (Taghzut, Bunsar, Zerqet), both conjugated and non-conjugated adjectives are found. Conjugation may be carried out by suffixes only (Taghzut, Bunsar), or can be regular (Zerqet). Conjugated adjectives (Taghzut, Bunsar, Zerqet) can be regarded as an intermediate category between adjectives and verbs. There is thus a continuum between non-verbs and verbs in Senhaja: Adjectives differ from verbs in that they mark only gender and number (and not person) and in that they have no MAN distinctions. Conjugated adjectives mark the person in addition to number and gender, which makes them similar to verbs, albeit they still lack MAN distinctions. In Seddat, there are no Berber adjectives, but only defective verbs.

The most frequent function of adjectives is the modification of a head noun. Adjectives can also function as predicates (cf. Section 7.1). Adjectives obligatorily agree with the head noun in gender and number. Both Berber and Arabic adjectives distinguish three forms: masculine singular, feminine singular, and plural.[529] Zerqet optionally marks feminine plural. The adjective can be nominalized. In certain contexts, Arabic adjectives accept the Arabic article *l-*.[530]

In varieties that have suffixal conjugation (Taghzut, Bunsar), not all verbs describing attributes have a special conjugation, and some attributive verbs have a regular marking, e.g. the verb *ṣbaḥ* /e/ (pan-Snh.) ‘to be nice, beautiful’.

There are dialectal differences in the frequency of Arabic borrowed adjectives. While the Ketama variety often employs Arabic adjectives without any change in their morphology, in the Zerqet variety, these are often incorporated into the (regular) verbal class. Compare, for example:

- *aš̲kaṛṯ tqila* (K), *ṯašekkaṛṯ tqila* (H) ‘The bag is heavy’ (adjective, FS);
- *ṯašekkaṛṯ ṯ-eṯqi* (H), *ṯašekkaṛṯ ṯ-eḏqel* (Z) ‘The bag is heavy’ (verb, 3FS).

In many Berber varieties, including Senhaja, some nouns can be used attributively, i.e. can modify another noun. Not all nouns can be used as attributes. Native Berber color

[529] Different from Ghomara (Mourigh 2015: 205), feminine singular and (common) plural forms do not coincide in Senhaja.

[530] Different from Ghomara (Mourigh 2015: 207), Berber adjectives do not accept the Arabic article in most Senhaja varieties. Hmed forms an exception, where Berber adjectives may occasionally be preceded by the article.

terms are attribute nouns. They are used alongside borrowed Arabic adjectives in most Senhaja varieties, e.g.[531]

(8) (a) *ġur-i aḫam ḏ aḇerk̲an* (H), cf. *ġur-i aḫyam ḏ aberk̲an* (Z)
at-1S house:EL PRED black:one:MS
(native Berber term: noun)
(b) *ġur-i aḫam kḥel* (H), cf. *ġur-i aḫyam kḥel* (K/Z)
at-1S house:EL black:MS
(borrowed Arabic adjective)
'I have a black house'.

In (*a*), the noun *aḇerk̲an* 'black one' modifies the noun *ah(y)am* 'house'. Words such as *aḇerk̲an* 'black one' are regarded here as a subcategory of nouns, because they have morphological characteristics of usual nouns, and because not all nouns can be used attributively.

To sum up, different lexical categories can be used attributively in Senhaja:
- adjectives (of Arabic and Berber origin, conjugated or not);
- attributive nouns;
- verbs (regular or defective).

For convenience, all these lexical categories can be referred to as "quality words". At the same time, it must be kept in mind that this denomination is not morphological: nouns used as attributes have morphological characteristics of nouns, and verbs describing attributes have morphological characteristics of verbs. Adjectives are an innovation in Senhaja: Berber adjectives have developed from the stative verbs, while Arabic adjectives are a result of borrowing. In both Senhaja and Ghomara (Mourigh 2015: 205), the following features are observed:

- adjectives constitute a word class of their own, with defined features;
- there are native Berber and borrowed Arabic adjectives, with different morphological markers;
- the class of Berber adjectives is limited, while Arabic adjectives are numerous.

In most Senhaja varieties, Arabic adjectives differ from Berber adjectives in that they do not have the relative form (cf. Section 7.5.2).

[531] In Ketama, all color terms are loans from Arabic. They can be (optionally) Berberized, e.g. *ḥmer* 'red' (adj.) ~ *aḥemraw* 'red (one)' (noun).

7.2.1. Berber Adjectives

The following table provides the scheme common to all Senhaja varieties that have Berber adjectives (i.e. all varieties excluding Seddat – Ketama, Taghzut, Hmed, Bunsar, and Zerqet).[532]

Marking of Berber adjectives in Senhaja

	Scheme
MS	Ø
FS	-(e)ṯ
PL	-(e)n

Two Berber adjectives are encountered in most Senhaja varieties: *meqqur~meqqer* 'big' and *mezzi~meẓẓi(y)* 'small'. The adjective *meqqur~meqqer* has different realizations with regard to *u* in different Senhaja varieties. In Ketama, *u* changes place, which usually indicates that *u* is a result of lost labialization (*meqq^{w}er* > *meqqur*), see Section 2.1.6. Taghzut is similar, but here, *u* disappears entirely in forms with suffixes. In the other varieties (Hmed/Bunsar/Zerqet), *u* is stable:

The adjective 'big' in Senhaja

	Ketama	**Taghzut**	**Hmed/Bunsar/Zerqet**
MS	meqquṛ	meqquṛ	meqquṛ
FS	meqqṛu-ṯ	meqqṛ-eṯ	meqquṛ-eṯ
PL	meqqṛu-n	meqqṛ-en	meqquṛ-en

The adjective *mezzi~meẓẓi(y)* is almost pan-Senhaja, although it is lacking in Hmed, where it corresponds to the adjective *meččiḵ*. This lexeme shows variation in pharyngealization: *mezzi* is found in the majority of Senhaja, while pharyngealized *ẓẓ* is found in Zerqet.[533] In Bunsar and Zerqet, we observe the original form of the adjective (*-iy*) in combination with suffixes.[534]

[532] As mentioned previously, in Zerqet, the situation is more complicated, as the use of adjectives is complemented with the use of conjugated forms in specific persons (see Section 7.4). The Zerqet MS, FS, and PL (1P/3P) forms are included in this section, because they provide a parallel to the forms found in other Senhaja varieties. However, it must be kept in mind that the "plural" Zerqet form is not used with the 2P referent. By contrast, the Seddat forms that are obligatorily conjugated (i.e. always marked for person) are not provided in this section.

[533] Cf. also Seddat *meẓẓi* which is obligatorily conjugated (Section 7.4).

[534] In Senhaja, the final *-iy* > *-i*.

The adjective 'small' in Senhaja

	Ketama	Taghzut	Hmed	Bunsar	Zerqet
MS	mezzi	mezzi	meččiḵ	mezzi	meẓẓi
FS	mezzi-ṯ	mezzi-ṯ	meččiḵ-eṯ	mezziy-eṯ	meẓẓiy-eṯ
PL	mezzi-n	mezzi-n	meččiḵ-en	mezziy-en	meẓẓiy-en

In Ketama, there is a derived form of this adjective, *mezzitu*, which has the meaning 'very small':

MS	FS	PL	Variety	Translation
mezzitu	mezzitu-ṯ	mezzitu-n	K	very small

In Hmed, the word *messus* 'insipid' can function as a Berber adjective, although it can also bear morphological markers of an Arabic adjective. In Ketama, only Arabic markers are found. In Zerqet, this lexeme normally functions as a verb.[535]

The lexeme 'insipid' in Senhaja

	Hmed (Berber adj.)	Ketama/Hmed (Arabic adj.)		Zerqet (verb)
MS	messus	messus	3MS	i-messus
FS	messus-eṯ	messus-a	3FS	ṯ-messus
PL	messus-en	messus-in	3P	messus-en

The lexeme *melluy* 'white' is likewise found with adjectival marking only in the Hmed variety. It has a corresponding attributive noun in Hmed, *amelluy*, cf. Zerqet *ameğğul* 'white one'.[536] The gender is distinguished in the plural forms of nouns, unlike in adjectives:

The lexeme 'white' in Senhaja

	Hmed (B. adj.)		Hmed (noun)	Zerqet (noun)
MS	melluy	MS	a-melluy	a-meğğul
FS	melluy-eṯ	FS	ṯa-melluḵṯ~ṯa-melluyṯ	ṯa-meğğul-ṯ
PL	melluy-en	MP	i-melluy-en	i-meğğul-en
		FP	ṯi-melluḵ-in~ṯi-melluy-in	ṯi-meğğul-in

No other Berber adjectives have been found in Senhaja. There are thus only four lexemes that can function as Berber adjectives.

[535] The marker *-en* functions both as an adjectival plural marker and 3P verbal marker.

[536] In Ketama, all color terms are borrowed from Arabic.

7.2.2. Arabic Adjectives

7.2.2.1. Introduction

The majority of adjectives found in Senhaja originate from Arabic and preserve Arabic morphological marking. There are slightly over 60 Arabic adjectives in our database. It must be noted that some (morphological) participles can also function as adjectives (cf. Section 7.3).[537] Just like Berber adjectives, Arabic adjectives distinguish between masculine singular, feminine singular, and plural (with a possibility of marking feminine plural in Zerqet), but the markers themselves are different. In Arabic adjectives, there is a distinction between internal (apophonic) plurals and external plurals (i.e. those that are formed by means of suffixes). There is usually a correlation between the type of the plural and the structure of the base adjective.[538]

There is little variation in the marking of Arabic adjectives in Senhaja. Generally, the use of Arabic adjectives is more frequent in Western and Central Senhaja (Ketama, Taghzut, Seddat, Hmed) than in Eastern Senhaja (Zerqet, Mezduy). Also, many Arabic adjectives are integrated into the verbal class in Zerqet and Mezduy. Sometimes, the same root can be used to form an adjective and a verb, e.g. (Zerqet):

- the adjective *ṭwil* 'tall' (FS *ṭwila*, PL *ṭwalin*, no MAN distinctions), and
- the verb *ṭwil* 'to be tall' (3FS *ṭ-eṭwil*, 3P *ṭwil-en*, with MAN distinctions.[539]

Integration of Arabic adjectives is also found in other Senhaja varieties including Ketama, but it is much more frequent in Zerqet. In Zerqet, many Arabic adjectives have cognate verbs, while this is not the case in Ketama. Some words are found only as verbs in Zerqet, while their cognates function only as adjectives in Ketama. The examples provided in this section are valid for most Senhaja varieties, unless explicitly mentioned otherwise.

7.2.2.2. Adjectives with External Plurals

The suffixes of Arabic adjectives are as follows:

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[537] Here we distinguish between adjectives and participles as morphological terms, without reference to their syntactic function.

[538] On adjectives in Moroccan Arabic (and how they form plurals), see e.g. Caubet 1993, Marçais 1977, and Moscoso 2003.

[539] E.g. Imperfective *ṭṭwalay* 'to be (constantly) getting taller'.

Marking of Arabic adjectives with external plurals

	Scheme	Variety
MS	Ø	all
FS	-a	all
PL	-in	all
FP	-aṯ	Z

The feminine plural form of adjectives on *-aṯ* is found in Zerqet. Its use is not obligatory with a feminine plural referent. This form (specific to Zerqet) is omitted from the tables below. The following examples are grouped together by their structural types.

Examples of Arabic adjectives with external plurals

Type	MS	FS	PL	Translation	Variety
CaCC	waɛr	waɛr-a	waɛr-in	good, nice	K/H (Z)
CaCC	našef	nášf-a	nášf-in	dry	K/H (Z)
CaCiC	ḫaṭiṛ	ḫaṭiṛ-a	ḫaṭiṛ-in[540]	dangerous	K/T/H
CC:	merr	merr-a	merr-in	bitter	K/H
CC:aC	ɛeyyan	ɛeyyan-a	ɛeyyan-in	tired; bad	K/H/Z

Suffix *-an*

Some adjectives have the shape *CCC-an* (as in Arabic).[541] They are derived from verbs ofthe type *CCC* by means of the suffix *-an*.

MS	FS	PL	Translation
feṛḥan	feṛḥan-a	feṛḥan-in	happy
ɛeryan[542]	ɛeryan-a	ɛeryan-in	naked
ḥefyan[543]	ḥefyan-a	ḥefyan-in	barefoot
ġeḏban	ġeḏban-a	ġeḏban-in	angry
qenṭan	qenṭan-a	qenṭan-in	sad

[540] In Zerqet, the plural is either *ḫaṭar* (Bunjel dialect) or *ḫaṭar-is* (Ikherruden).

[541] On the suffix *-an*, cf. Pennacchietti 1974.

[542] This word has a free variant *ɛuryan* (FS *ɛuryan-a*, PL *ɛuryan-in*) in Ketama.

[543] This word has a free variant *ḥufyan* (FS *ḥufyan-a*, PL *ḥufyan-in*) in Ketama. Note that *ḥafi* is used in Senhaja only in the meaning ‘blunt’ (e.g. about a knife) or ‘empty, without anything else’ (e.g. about bread, tea).

The following adjective has been found in Ketama, Taghzut, and Hmed, and has related forms that are more frequently used without the suffix *-an* (also found in other varieties):

MS	**FS**	**PL**	**Translation**	**Variety**
ḥeznan	ḥeznan-a	ḥeznan-in	sad	K/T/H
ḥazin	ḥazin-a	ḥazin-in	sad	K/T/H/M
ḥazen	ḥazn-a	ḥazn-in	sad	K/T/H

The following adjective has the shape *CVC-an*. It is derived from a *CVC* verb:

MS	**FS**	**PL**	**Translation**	**Variety**
ḥiran	ḥiran-a	ḥiran-in	confused	K/T/H/M

The following adjective has the shape *CC:-an*. The base verb is of *CCV* (*CyV*) type:

MS	**FS**	**PL**	**Translation**
ɛeyyan	ɛeyyan-a	ɛeyyan-in	tired; bad

7.2.2.3. Adjectives on *-i*

In *-i*-final adjectives, a glide *yy* is inserted before suffixes. In some examples, the final *-i* is a nisba suffix (cf. Section 6.5.3) which is used to derive adjectives from nouns. In other examples, *-i* is not derivational. Adjectives in this group form plurals by the suffix without apophony. In Ketama and Zerqet, the plural suffix is realized as *-en* in this case, while in Taghzut and Hmed, the suffix is *-in*, e.g.[544]

MS	**FS**	**PL (K/Z)**	**PL (T/H)**	**Translation**
neqqi	neqqiyy-a	neqqiyy-en	neqqiyy-in	clean
qwi	qwiyy-a	qwiyy-en	qwiyy-in	strong
ḍuġri	ḍuġriyy-a	ḍuġriyy-en	ḍuġriyy-in (T)	honest
ḥeẓẓuṭi (K) ḥeẑẑuṭi (T/H)	ḥeẓẓuṭiyy-a (K) ḥeẑẑuṭiyy-a (T/H)	ḥeẓẓuṭiyy-en	ḥeẑẑuṭiyy-in	naked

Compare the following adjectives of the nisba type (derived from nouns):[545]

[544] The adjectives *qwi* (root *qwy*) and *neqqi* (root *nqy*) are not nisbas: the final *-y* belongs to the root.

[545] The adjective *ǧehdi* is derived from *ǧuhd* 'effort', and *ḥqiqi* from *haqq* 'truth'. These adjectives are not found in Zerqet.

MS	FS	PL (K)	PL (T/H)	Translation
ğuhdi (K) ğehdi (T/H)	ğuhdiyy-a (K) ğehdiyy-a (T/H)	ğuhdiyy-en	ğehdiyy-in	strong
ḥqiqi	ḥqiqiyy-a	ḥqiqiyy-en	ḥqiqiyy-in	real

7.2.2.4. Adjectives with Apophonic Plurals

(1) *CCC* > *CuCaC* ~ *CuCC* ~ *CCC-in*

Adjectives of the type *CCC* often have plurals of the type *CuCaC* in Ketama and Taghzut, and *CuCC* in most other varieties (Seddat, Hmed, Bunsar, and Zerqet).[546] This type includes color terms.[547] In Hmed and Taghzut, the external plurals are also found. Some examples follow:

MS	FS	PL *CuCaC* K/T	PL *CuCC* S/B/H/Z	PL *CCC-in* T/H	Translation
byeḏ	beyḏ-a	buyaḏ	buyeḏ	beyḏ-in	white
ḫḏeṛ	ḫeḏṛ-a	ḫuḏaṛ	ḫuḏeṛ	ḫeḏṛ-in	green
ḥmeṛ	ḥemṛ-a	ḥumaṛ	ḥumeṛ	ḥemṛ-in	red
kḥel	keḥl-a	kuḥal	kuḥel	keḥl-in	black
ṣfeṛ	ṣefṛ-a	ṣufaṛ	ṣufeṛ	ṣefṛ-in	yellow
zṛaq /e/	zeṛq-a	zuṛaq /a/	zuṛaq /e/	zeṛq-in	blue

The following adjectives not referring to the color belong to the same structural type. They are found in Ketama, Taghzut, and Hmed. The external plurals are also possible:

MS	FS	PL (K/T)	PL (H)	PL (K/T/H)	Translation
ḥṛeš	ḥeṛš-a	ḥuṛaš	ḥuṛeš	ḥeṛš-in	rough
ṛṭeb	ṛeṭb-a	ṛuṭab	ṛuṭeb	ṛeṭb-in	soft

(2) *CCC* > *CiCaC* ~ *CCC-in*

The following adjectives of the type *CCC* have plurals of the type *CiCaC*. The external plural is also possible in Taghzut and Hmed.

[546] This type also includes adjectives with the underlying schwa realized as *a* before a back consonant, e.g. *zṛaq* /zṛeq/ 'blue'.

[547] While native Berber color terms exist in Central and Eastern Senhaja varieties, Arabic borrowed color terms are used alongside them (especially by the younger generation), so the examples provided here are valid for the whole of Senhaja.

MS	FS	PL *CiCaC* (K/T/H)	PL *CCC-in* (T/H)	Translation
ḥwel	ḥewl-a	ḥiwal	ḥewl-in	crooked
ɛweṛ	ɛewṛ-a	ɛiwaṛ	ɛewṛ-in	blind
ɛwež	ɛewž-a	ɛiwaž	ɛewž-in	crooked

7.2.2.5. Adjectives with Apophonic Plurals and suffix *-in*

Adjectives of the type *CCiC* have apophonic plurals with the suffix *-in* (*CCaC-in* type) in most Senhaja varieties. Taghzut allows for two options: the apophonic *CCaC-in* type as well as the external *CCiC-in* type.[548] The following examples are pan-Senhaja:[549]

MS	FS	PL (pan-Snh.)	PL (T)	Translation
bɛiḏ	bɛiḏ-a	bɛaḏ-in	bɛiḏ-in	far
ġliḏ	ġliḏ-a	ġlaḏ-in	ġliḏ-in	fat
qṛib	qṛib-a	qṛab-in	qṛib-in	near
qṣir	qṣir-a	qṣar-in	qṣir-in	short
ṛḫis	ṛḫis-a	ṛḫas-in	ṛḫis-in	cheap
ṣḥiḥ	ṣḥiḥ-a	ṣḥaḥ-in	ṣḥiḥ-in	fat, correct
tqil	tqil-a	tqal-in	tqil-in	heavy
ždid	ždid-a	ždad-in[550]	ždid-in	new

7.2.2.6. Special Cases

Some adjectives have irregular forms. In the adjective *ḥlu* ‘sweet’ (pan-Senhaja), *w* is inserted before suffixes:

MS	FS	PL	Translation
ḥlu	ḥluw-a	ḥluw-in	sweet

Exceptionally, one adjective has the plural suffix *-is* in Zerqet (the Ikherruden dialect), and apophonic plural in the Bunjel dialect. In Ketama, the plural is external: *ḫaṭir-in*.

MS	FS	PL	Variety	Translation
ḫaṭiṛ	ḫaṭiṛ-a	ḫaṭiṛ-is	Z-Ikherruden	dangerous

[548] In this case, Taghzut behaves like Ghomara, where *CCiC* adjectives have external plurals (Mourigh 2015: 210).

[549] In Zerqet, all these adjectives can also function as regular verbs.

[550] There is an alternative apophonic plural form *ždad* (without the suffix *-in*) that is also pan-Senhaja.

7.2.3. Diminutives of Adjectives

Some diminutive forms of adjectives are found in Ketama and Hmed varieties (normally absent in Bunsar and Zerqet, with a few exceptions). In Taghzut, diminutives of adjectives are not as widespread as in Ketama and Hmed, but there are some examples. The diminutive adjective acquires the meaning 'somewhat ~' (where ~ is the meaning of the base adjective).[551] In the examples provided in this section, translations of the base adjective are given.

$C_1C_2iC_2C_3$

One type of diminutives copies the second radical of the base adjective. The base adjective can belong to different structural types (e.g. *CCC*, *CaCC*, *CCiC*). The following examples are common to Ketama, Taghzut, and Hmed, while some other diminutives are not used in Taghzut:[552]

Type	Base	Transl.	DIM.MS	DIM.FS	DIM:PL
CCC	kḥel	black	kḥiḥel	kḥiḥl-a	kḥiḥl-in
CCC	ṣfeṛ	yellow	ṣfifeṛ	ṣfifṛ-a	ṣfifṛ-in
CaCC	qaṣeḥ	hard	qṣiṣaḥ /e/	qṣiṣḥ-a	qṣiṣḥ-in
CaCC	waseɛ /a/	wide	wsisaɛ /e/	wsisɛ-a	wsisɛ-in
CCiC	ḍɛif	thin	ḍɛiɛef	ḍɛiɛf-a	ḍɛiɛf-in
CCiC	ṭwil	long	ṭwiwel	ṭwiwl-a	ṭwiwl-in

CCiwC and $C_1wiC_1C_2$

Two diminutives have the shape *CCiwC*; the base adjectives have the structure *CCiC* (Ketama/Taghzut/Hmed):

Type	Base	Transl.	DIM.MS	DIM.FS	DIM:PL
CCiC	qlil	few	qliwel	qliwl-a	qliwl-in
CCiC	rqiq	thin	rqiwaq /e/	rqiwq-a	rqiwq-in

Diminutive of the Berber adjective *meqquṛ*

The Berber adjective *meqquṛ* 'big' also has a diminutive form (Ketama, Taghzut, Hmed). The diminutive has the form *mquqeṛ*, thus recalling the Arabic $C_1C_2iC_2C_3$

[551] On diminutives of Arabic adjectives, see Marçais 1977: 148.

[552] In the Zerqet variety (Bunjel dialect), only a diminutive of the adjective *qṣir* 'short' (viz. *qṣiṣeṛ*) is found.

diminutives. The diminutive adjective has Arabic suffixes in feminine singular and plural forms in Ketama and Taghzut, and can have either Arabic or Berber suffixes in Hmed.

Base	Transl.	DIM.MS	DIM.FS	DIM:PL	Variety
meqquṛ	big	mquqeṛ	mquqṛ-a	mquqṛ-in	K/T/H
meqquṛ	big	mquqeṛ	mquqṛ-eṭ	mquqṛ-en	H

7.3. Participle

7.3.1. Introduction

As mentioned previously, in this thesis, the term 'participle' is used to refer to participles borrowed from Arabic, while the term 'relative form' is used to refer to what is traditionally known as 'Berber participle' (Section 3.4.3). In Arabic, participle formation is productive. In Senhaja, Arabic participles are borrowed as such, rather than formed within Berber. Exceptionally, some participles are formed following the Arabic patterns based on the native Berber verbs. In Senhaja, unlike in Arabic, participles are not used for aspectual purposes (e.g. active participles as progressives or resultatives).

In this study, we distinguish between adjectives and (active and passive) participles as morphological terms. Thus, *ġali* 'expensive' and *ḫawi* 'empty' are active participles only by form, not by meaning. When nominalized, participles can also function as nouns. Senhaja Berber employs a large number of Arabic participles (220 in our database), the vast majority of which are passive participles (144 in our database, as opposed to 76 active participles). Not all participles are found across all Senhaja varieties. However, it is safe to say that all Senhaja varieties have borrowed a number of Arabic participles and use them in everyday speech. In this chapter, the majority of examples are valid for all Senhaja. Whenever there is a difference, the variety is indicated. Although the vast majority of participles are directly borrowed from Arabic, some (passive) participles are derived from native Berber verbs.[553] This phenomenon is most frequent in Hmed, while a few examples are found in Ketama and Taghzut. It doesn't occur in the other varieties. No active participles based on the native verbs have been found so far anywhere.

[553] In Ghomara Berber, there is also one passive participle of a native Berber verb: *mdaḡem* 'drawn (of water)', from *aḡem-d* 'to draw water' (Mourigh 2015: 220).

Both passive and active participles retain Arabic morphology in Senhaja.[554] The difference is that in Arabic, participles are derived from the corresponding verb root by applying a certain scheme, while in Senhaja, many participles do not share the root with the corresponding verb. Instead, they often have a suppletive relation to the native Berber verb. At this point, they show similar behavior to borrowed Arabic (C2 geminated) causatives (Section 3.3.6). Because one participle may be common to all Senhaja varieties while corresponding to different verbs in different varieties, the participles are listed in this chapter without corresponding base verbs.

Participles, like adjectives, distinguish three forms: masculine singular, feminine singular, and plural. In Zerqet, a distinct feminine plural is optional. The suffixes are the same as used with Arabic adjectives (that have external plurals). The same suffixes apply to participles derived from native Berber verbs.

Participle marking

	Scheme	**Variety**
MS	Ø	all
FS	-a	all
PL	-in	all
FP	-at̲	Z

7.3.2. Passive (*m*-derived) Participles

There is a group of participles derived by the prefix *m-* (and applying a particular scheme to the root, see below). Such participles are usually referred to as passive participles, although they may not always be passive in meaning. Within these participles, we can distinguish different structural types that correspond to different types of Arabic base verbs.

7.3.2.1. Regular Types

mCCuC

A frequent type of passive participles has the form *mCCuC*. This type of participle is derived from base verbs with the shape *CCC* or *CC:*. Some examples follow.

[554] The same is observed in Ghomara Berber: Mourigh 2015: 217.

***mCCuC* participles derived from *CCC* base verbs**

MS	FS	PL	Translation
meḍṛub	meḍṛub-a	meḍṛub-in	beaten
medrus	medrus-a	medrus-in	threshed
meɛruḍ	meɛruḍ-a	meɛruḍ-in	invited
meġsul	meġsul-a	meġsul-in	washed
meqṣum	meqṣum-a	meqṣum-in	divided
meṛbuṭ	meṛbuṭ-a	meṛbuṭ-in	tied

***mCCuC* participles derived from *CC:* base verbs**

MS	FS	PL	Translation
medquq	mequq-a	medquq-in	pounded
meɛṭuṭ	meɛṭuṭ-a	meɛṭuṭ-in	bitten
mefkuk	mefkuk-a	mefkuk-in	released
mesdud	mesdud-a	mesdud-in	closed

mCCaC

Some participles have the form *mCCaC*. Just like *mCCuC* type, they can be derived from *CCC* or *CC:* verbs:

MS	FS	PL	Translation
meḫṭaṛ	meḫṭaṛ-a	meḫṭaṛ-in	chosen
meškak	meškak-a	meškak-in	doubted

mCC:C

Participles of the type *mCC:C* are derived from base verbs of the type *CC:C* (stem II).

MS	FS	PL	Translation
mbellaɛ /e/	mbellɛ-a	mbellɛ-in	closed
mɛemmeṛ	mɛemmṛ-a	mɛemmṛ-in	filled
mfeṛṛaḥ /e/	mfeṛṛḥ-a	mfeṛṛḥ-in	(made) happy
mfessaḫ /e/	mfessḫ-a	mfessḫ-in	opened
mḫebbaɛ /e/	mḫebbɛ-a	mḫebbɛ-in	hidden
mḫelleṣ	mḫellṣ-a	mḫellṣ-in	paid
mheṛṛeẓ	mheṛṛẓ-a	mheṛṛẓ-in	broken
mqellaq /e/	mqellq-a	mqellq-in	(made) angry

mCaCC

Participles of the type *mCaCC* are derived from base verbs of the type *CaCC* (stem III).

MS	FS	PL	Translation
mɛafer	mɛafr-a	mɛafr-in	tried
mɛaqeb	mɛaqb-a	mɛaqb-in	punished
msameḥ	msamḥ-a	msamḥ-in	forgiven

The following participle shows free variation between *mCaCC* and *mCaCuC* (pan-Senhaja):

MS	FS	PL	Translation
mɛaṛeḏ ~ mɛaṛuḏ	mɛaṛḏ-a~ mɛaṛuḏ-a	mɛaṛḏ-in~ mɛaṛuḏ-in	invited

The following participle is derived from *CaC:* base verb. Variants with *q* and *g* are found:

MS	FS	PL	Translation
mgadd~ mqadd	mgadd-a~mqadd-a	mgadd-in~mqadd-in	flattened

mCawC

Participles of the type *mCawC* are derived from base verbs of the type *CawC*.

MS	FS	PL	Translation
msawem	msawm-a	msawm-in	priced
mɛaweḏ	mɛawḏ-a	mɛawḏ-in	repeated

mtCC:C

One participle of the type *mtCC:C* is derived from the base verb of the type *tCC:C* (stem V).

MS	FS	PL	Translation
metḥeššem[555]	metḥeššm-a	metḥeššm-in	made ashamed

[555] There is also a participle *mḥeššem* (derived from *ḥeššem*, stem II) which is a near-synonym of *metḥeššem*.

mtCaCC

Participles of the type *mtCaCC* are derived from verbs of the type *tCaCC* (stem VI).

MS	FS	PL	Translation
metsamaḥ /e/	metsamḥ-a	metsamḥ-in	forgiven
mettafaq /e/	mettafq-a	mettafq-in	agreed

mCtCC

Participles of the type *mCtCC* are derived from verbs of the type *CtaCC* (stem VIII).

MS	FS	PL	Translation
meɛṭaṛef	meɛṭaṛf-a	meɛṭaṛf-in	admitted
meḥtaṛem	meḥtaṛm-a	meḥtaṛm-in	respected
mektašef	mektašf-a	mektašf-in	investigated

The following participle of the type *mCtaC* is derived from the verb of the type *CtaC*:

MS	FS	PL	Translation
meḥtaž	meḥtaž-a	meḥtaž-in	in need

mstCCC ~ mstaCC

Participles of the type *mstCCC~mstaCC* are derived from verbs of the type *stCCC~staCC* (stem X).

MS	FS	PL	Translation
mesteɛžeb	mesteɛžb-a	mesteɛžb-in	amazed
mestanes	mestans-a	mestans-in	used to

mCCCC

Participles of the type *mCCCC* are derived from verbs of the type *CCCC*.

MS	FS	PL	Translation
mġerbel	mġerbl-a	mġerbl-in	sieved
mḫeṛbaq /e/	mḫeṛbq-a	mḫeṛbq-in	confused
mḫerdel	mḫerdl-a	mḫerdl-in	crazy
mkeṛfes	mkeṛfs-a	mkeṛfs-in	beaten; messy
mseḵsef	mseḵsf-a	mseḵsf-in	cleaned

7.3.2.2. Passive Participles in *-i*

When the participle ends in *-i*, either the glide *yy* is inserted before the feminine singular and the plural suffix (see the *mCCi* type below), or the final *-i* of the participle becomes *y* before the suffixes.[556] The plural suffix is realized as *-in* or *-en* in this case, depending on the variety (cf. adjectives on *-i* discussed above): *-in* is found in Taghzut and Hmed, vs. *-en* in Ketama and Zerqet.

mCCi

Participles of the type *mCCi* are usually derived from base verbs of the type *CCV*.[557] When participle has the type *mCCi*, *yy* is inserted before the feminine singular and the plural suffix.

MS	FS	PL (T/H)	PL (K/Z)	Translation
mebni	mebniyy-a	meḇniyy-in	mebniyy-en	built
meḫwi	meḫwiyy-a	meḫwiyy-in	meḫwiyy-en	emptied
mensi	mensiyy-a	mensiyy-in	mensiyy-en	forgotten
meqli	meqliyy-a	meqliyy-in	meqliyy-en	fried
mešri	mešriyy-a	mešriyy-in	mešriyy-en	bought
mešwi	mešwiyy-a	mešwiyy-in	mešwiyy-en	roasted

mCC:i

In participles of the type *mCC:i*, the final *-i* becomes *y* before suffixes.

MS	FS	PL (T/H)	PL (K/Z)	Translation
mḍuwwi	mḍuwwy-a	mḍuwwy-in	mḍuwwy-en	brightened
mfeḍḍi	mfeḍḍy-a	mfeḍḍy-in	mfeḍḍy-en	weakened
mḥeffi	mḥeffy-a	mḥeffy-in	mḥeffy-en	blunted
mḫelli	mḫelly-a	mḫelly-in	mḫelly-en	left
mluwwi	mluwwy-a	mluwwy-in	mluwwy-en	rolled, spinned
mneqqi	mneqqy-a	mneqqy-in	mneqqy-en	cleaned
mṣeffi	mṣeffy-a	mṣeffy-in	mṣeffy-en	sieved

[556] This is different from Ghomara (Mourigh 2015: 219-220), where *i-* becomes *y* only before the feminine singular suffix, while in the plural form, one of the two *i*'s is elided.

[557] Occasionally, some original participles of the type *mCaCi* (derived of base verbs of the type *CaCi*) are also incorporated in this category, e.g. *meḥḏi* 'touched' (<*ḥaḏi* 'touch').

The following two participles belong to the same type in Hmed, corresponding to *mCC:C* in Zerqet because the final *-el* > *-i* in Hmed. This change is often optional in Arabic loanwords, allowing for variation in some cases:

MS	**FS**	**PL**	**Transl.**
mšelli (K/H) mšellel (Z)	mšelly-a (K/H) mšell-a (Z)	mšelly-in (H), mšelly-en (K) mšell-in (Z)	washed
mbeddi (H) mbeddel (K/H/Z)	mbeddy-a (H) mbeddl-a (K/H/Z)	mbeddy-in (H) mbeddl-in (K/H/Z)	changed

mCaCi

Participles of the type *mCaCi* are derived from base verbs of the type *CaCi*. In participles of *mCaCi* type, just as in the *mCC:i* type described above, the final *-i* > *y* before suffixes. There are very few examples. The following two participles are found in Ketama, Hmed, and Taghzut:

MS	**FS**	**PL (H/T)**	**PL (K)**	**Translation**
mlaqi	mlaqy-a	mlaqy-in	mlaqy-en	meeting
msari	msary-a	msary-in	msary-en	travelling

mtCaCi

The following participle is of *mtCaCi* type (Ketama/Taghzut). The final *-i* becomes *y* before suffixes:

MS	**FS**	**PL (Taghzut)**	**PL (Ketama)**	**Translation**
metlaqi	metlaqy-a	metlaqy-in	metlaqy-en	meeting together

7.3.2.3. Participles of Berber verbs

In Hmed (and more rarely, in Taghzut and Ketama), a few participles derived from native Berber verbs are found.[558] Sometimes, they follow the usual schemes of Arabic participles, and sometimes, they have irregular schemes (e.g. Hmed participles *meqqen* 'tied', *messu* 'spread', and *muġġi* 'stuck'). In other varieties, Berber verbs usually have a suppletive relationship with Arabic participles (e.g. *qqen* 'to tie' – *meṛbuṭ* 'tied').

[558] When Senhaja speakers apply Arabic morphology to Berber verbs (e.g. to derive a passive form or a participle), they sometimes consider the resulting form as valid in (and coming from) Darija. For example, according to some Hmed speakers, *ngi* 'to push' is Berber, while *mengi* 'pushed' is Berber and Darija; *berr* 'bite' is Berber, but *nebber* 'to be bitten' and *mnebber* 'bitten' is Berber and Darija, and so on.

Generally, derivation of participles from Berber verbs remains marginal in Senhaja, both in terms of Senhaja varieties where this phenomenon is found, as well as in number (thus, even within Hmed, Arabic suppletive participles are much more common than participles derived of Berber verbs). Nevertheless, some examples are found, and are presented in this section.

The Berber verb 'to close' has a corresponding participle found in three Senhaja varieties (Ketama, Hmed, and Taghzut). The verb is realized as *rgi* in Ketama and Hmed, and as *rgež* in Taghzut (from the original *rgel*, found in Zerqet). The participle belongs to the *mCCi* type in Ketama and Hmed, and to the *mCCuC* type in Taghzut:

MS	**FS**	**PL**	**Transl.**	**Base verb**	**Var.**
mergi	mergiyy-a	mergiyy-in (H) mergiyy-en (K)	closed	*rgi* 'close'	K/H
merguž	merguž-a	merguž-in	closed	*rgež* 'close'	T

The verb *qqen* 'to tie' has corresponding participles (of different shapes) in Taghzut and Hmed. The Taghzut *meqnun* is of the frequent *mCCuC* type (following the Arabic pattern), while Hmed *meqqen* is closer to the original verb (derived only by prefixing *m-*) and has an irregular pattern *mC:C*:

MS	**FS**	**PL**	**Transl.**	**Base verb**	**Var.**
meqnun	meqnun-a	meqnun-in	tied	*qqen* 'tie'	T
meqqen	meq(q)n-a	meq(q)n-in	tied	*qqen* 'tie'	H

The following participle has the common *mCC:C* shape. It is found in Ketama and Hmed:[559]

MS	**FS**	**PL**	**Transl.**	**Base verb**
msemmer	msemmr-a	msemmr-in	heated in the sun	*summer* 'be in the sun'

Most participles derived from Berber verbs are found in Hmed. The following participles have irregular schemes, *mC:u* and *muC:i* (not found in participles derived from Arabic verbs). The example *messu* 'spread' demonstrates that in *u*-final

[559] The participle *msemmer* derived from the Berber verb *summer* ('be in the sun', related to *asammer* 'sunny side of a hill' forms a minimal pair with *mṣemmeṛ* 'nailed; shod' derived from the Arabic verb *ṣemmeṛ* 'to nail'. The verb *summer* 'be in the sun' is not related to the Arabic (and sometimes used in Senhaja) adjective *ṣmeṛ* 'brown (of skin)'.

participles, the final *u* becomes *w* before feminine singular and plural suffixes. In the participle *muġġi* 'stuck' derived from *uġġi* 'to be stuck', the final *-i* goes back to the original *-l* (cf. Zerqet *aġel* 'to be stuck').

MS	FS	PL	Transl.	Base verb	Variety
messu	messw-a	messw-in	spread	*ssu* 'spread'	H
muġġi	muġġy-a	muġġy-in	stuck	*uġġi* 'be stuck'	H

The following participles found in Hmed are formed on the basis of *s*-derived (causative) verbs:

MS	FS	PL	Transl.	Verb
mserweṯ	mesrewṯ-a	mesrewṯ-in	threshed	*serweṯ* 'thresh' (frozen causative)
messenker	messenkr-a	messenkr-in	raised	*ssenker* 'raise' < *kker* 'get up'
messuffaġ /e/	messuffġ-a	messuffġ-in	brought out	<*ssufaġ* /e/ 'make go out' < *ffaġ* /e/ go out'

The following participle is formed on the basis of *n*-derived (passive) verb (Hmed):

MS	FS	PL	Transl.	Verb
mnebber	mnebbr-a	mnebbr-in	bitten	*nebber* 'be bitten' < *bber* 'bite'

7.3.3. Active Participles

Active participles take the same endings as passive participles and adjectives. Not as many verbs have active participles as passive participles. Active participles can share the root with the base verb (if it is also a borrowing). However, very frequently, the active participle has a suppletive relation to the (Berber) base verb. As with passive participles, the same active participle can be used in different Senhaja varieties, and correspond to different base verbs depending on the variety. In Taghzut, active participles can be found with the deictic clitic *d*.

CaCC

Participles of the type *CaCC* are derived from base verbs of the type *CCC* (including *w*-initial, as in the last three examples).[560]

[560] In some words, the initial ' (*hamza*) has been changed to *w*. Cf. Fischer, Jastrow & Behnstedt 1980: 67.

MS	FS	PL	Translation
bareḏ	barḏ-a	barḏ-in	cold
gales	gals-a	gals-in	sitting; idle
habeṭ	habṭ-a	habṭ-in	going down
ḫarež	ḫarž-a	ḫarž-in	going out
kaṛah /e/	kaṛh-a	kaṛh-in	hating
naɛes	naɛs-a	naɛs-in	asleep
waqef	waqf-a	waqf-in	standing
wasaɛ /e/	wasɛ-a	wasɛ-in	wide
wakel	wakl-a	wakl-in	eating

CayC

Participles of the type *CaCC* with *y* as C_2 are derived from base verbs of the type *CVC* (hollow verbs).

MS	FS	PL	Translation
bayen	bayn-a	bayn-in	apparent
ɛayeš	ɛayš-a	ɛayš-in	living
fayaq /e/	fayq-a	fayq-in	awake
kayen	kayn-a	kayn-in	existing, available
ṣayem	ṣaym-a	ṣaym-in	fasting

Participles on *-i*

CaCi

Participles of the type *CaCi* are derived from base verbs of the type *CCV*. The final *-i* becomes *y* before suffixes.[561] The plural marker is *-in* in Taghzut and Hmed and *-en* in Ketama and Zerqet:

MS	FS	PL (T/H)	PL (K/Z)	Translation
kari	kary-a	kary-in	kary-en	renting
qaṛi	qaṛy-a	qaṛy-in	qaṛy-en	studying; learned
maḏ̲i	maḏ̲y-a	maḏ̲y-in	maḏ̲y-en	sharp
ġali	ġaly-a	ġaly-in	ġaly-en	expensive
ḫawi	ḫawy-a	ḫawy-in	ḫawy-en	empty

[561] In Ghomara, in the plural forms of such participles, the final *-i* can either become a glide or be omitted (Mourigh 2015: 224).

The following participles have a tense C_2:

MS	FS	PL (T/H)	PL (K/Z)	Translation
mašši	mašši-a	mašši-in	mašši-en	going
mažži	mažži-a	mažži-in	mažži-en	coming

CC:aC

Only one participle has the form *CC:aC*, but it is used frequently and found in all Senhaja varieties:

MS	FS	PL	Translation
ḫeddam	ḫeddam-a	ḫeddam-in	working

7.4. Conjugated Adjectives and Participles

7.4.1. Introduction

Some Senhaja varieties (Taghzut, Bunsar) allow for Berber adjectives to be conjugated. In Seddat, cognate lexemes are obligatorily conjugated, and are regarded as defective verbs. Furthermore, Arabic adjectives and participles can also be conjugated in Taghzut, but not in other varieties. In Ketama and Hmed, adjectives and participles are not conjugated.[562]

The adjectival conjugation found in Taghzut and Bunsar is carried out by suffixes only, and as such, it recalls the stative conjugation found in many Berber varieties (Kossmann 2009). However, conjugated adjectives are not regarded as stative verbs in this thesis, because they lack the MAN distinctions. See Taine-Cheikh 2003a on the adjectives and suffixal conjugation in Zenaga. In Senhaja, the situation is not exactly as in Zenaga.[563] Conjugated adjectives are akin defective verbs and are distinguished from them in Taghzut and Bunsar by the special marking. In Seddat, the conjugation of cognate lexemes is regular, making them defective verbs. The line between the conjugated adjectives and defective verbs is thus drawn based on morphological criteria. As noted previously, many Arabic adjectives have been incorporated into the verb class in Zerqet. In this case, they show not only agreement in person, but also MAN distinctions. For example, the Arabic adjective *ṭwil* 'tall' can function as a verb ('to be tall') in Zerqet, with the regular PNG marking and the Imperfective stem *ṭṭwalay* ('become taller and taller').

[562]Ghomara Berber also does not have conjugated adjectives and participles (Mourigh 2015).

[563] In the case of Zenaga, some words can be defined as adjectives, although they bear PNG markers, because there is also a Perfective (of the same root) that has regular conjugation.

In what follows, we will first discuss conjugated Berber adjectives in Taghzut and Bunsar with the corresponding defective verbs in Seddat and corresponding lexemes in Zerqet. Conjugated Arabic adjectives and participles (only Taghzut) follow. In this section, only forms in affirmative contexts and with reference to the present situation are discussed.[564]

7.4.2. Berber Adjectives

As mentioned previously, in parts of Senhaja (Ketama, Hmed), adjectives are never conjugated, while in other varieties (Taghzut, Bunsar), they can be optionally conjugated by means of the special marking (suffixes only).[565] In Seddat, cognate lexemes are obligatorily conjugated with the regular PNG affixes. They are regarded here as defective verbs. In Zerqet, the situation is special (see below).

According to Lafkioui 2009c: 111, in Bshir, either non-conjugated adjectives or regularly conjugated forms are used, depending on the syntactic context: non-conjugated adjectives are used as complements of a verb (e.g. 'to become'), and conjugated forms are used on their own, when they are not complements of a verb. We have not observed a similar situation in the surveyed varieties. In Taghzut and Bunsar, where variation in the marking of adjectives is found, both conjugated and non-conjugated forms are found in the same syntactic contexts, e.g. (T/B)

(9) *ṯ-uġul-eḏ* *meqquṛ* (T),
ṯ-uġuy-eḏ *meqquṛ* (B)
2-become:P-2S big:MS
'You became big (MS).'

(10) *ṯ-uġul-eḏ* *meqqṛ-eḏ* (T)
ṯ-uġuy-eḏ *meqquṛ-eḏ* (B)
2-become:P-2S big-2S
'You (SG) became big.'

(11) *ḵeğği* *meqquṛ* (T/B)
you:MS big:MS
(ḵeğği) *meqqṛ-eḏ* (T), cf. *(ḵeğği) meqquṛ-eḏ* (B)
you:MS big-2S
'You (MS) are big.'

[564] For negation of such forms, see Section 7.6; for the reference to the future and past, auxiliaries are used (e.g. the verb 'to be' or 'to find', cf. Section 5.4.

[565] In this thesis, we refer to this set as the *special set* (specific to the adjectival conjugation) to distinguish it from the *regular set* used with verbs (including defective verbs as in Seddat).

Following are paradigms for conjugated adjectives (and Seddat defective verbs) in Senhaja. In some forms (3MS and 3FS in the special set), there is no formal difference in the marking of non-conjugated and conjugated adjectives. In 2P, Bunsar has *-n*, Zerqet *-m*, while Taghzut shows variation (*-n*~*-m*). As usual, Zerqet (Ikherruden dialect) optionally distinguishes separate 2FP and 3FP forms (absent in Taghzut, Bunsar, and Seddat).

Conjugation of adjectives and defective verbs in Senhaja

Taghzut/Bunsar/Zerqet-Bunjel (*special set*)			**Seddat (*regular set*)**				**Zerqet-Ikherruden**			
1S	X	-(a)ġ[566]	**1S**		X	-(a)ġ	**1S**		X	-(a)ġ
2S	X	-(e)ḏ	**2S**	ṯ-	X	-(e)ḏ	**2S**	ṯ-	X	-(e)ḏ
3MS	X		**3MS**	i-	X		**3MS**	i-	X	
3FS	X	-(e)ṯ	**3FS**	ṯ-	X		**3FS**	ṯ-	X	(-(e)ṯ)
1P	X	-(e)n	**1P**	n-	X		**1P**	n-	X	
2P	X	-(e)n (B/T) -(e)m (T/Z)	**2P**	ṯ-	X	-(e)m	**2P**	ṯ-	X	-(e)m
2FP			**2FP**				**2FP**	ṯ-	X	-(e)mt
3P	X	-(e)n	**3P**		X	-(e)n	**3P**		X	-(e)n
3FP			**3FP**				**3FP**		X	-(e)nt

In Zerqet, different marking is found in different dialects (Bunjel and Ikherruden). In Bunjel, only suffixes are used (*special set*). In Ikherruden, the paradigm is similar to the regular one, except for 3FS, which can combine the prefix *ṯ-* and the suffix *-ṯ* (the suffix can be omitted). Unlike Taghzut and Bunsar, Zerqet does not allow the use of non-conjugated or conjugated adjectives in all persons. In Zerqet, depending on the variety, non-conjugated (Bunjel) or conjugated (Ikherruden) forms are found for the 1S. In 2P, the person is obligatorily marked in Zerqet (Bunjel *-m*, Ikherruden *ṯ-…-m*), while a common plural form found in other Senhaja varieties (*…-n*) is not used.

Following are paradigms for the conjugated adjective *meqqeṛ*~*meqquṛ* ‘big, old’ and Seddat defective verb ‘to be big/old’.[567]

[566] In Bunjel, only the non-conjugated adjectives are found with 1S, with the gender marking (masculine X, feminine X-*ṯ*).

[567] As mentioned previously, this word shows variation with regard to the status of *u*: it is unstable in Taghzut and Seddat (*meqquṛ* > *meqqṛ-* when followed by a suffix).

Conjugation of *meqq(u)ṛ* '(to be) big'

Taghzut/Bunsar/Zerqet-Bunjel (*special set*)			**Seddat (*regular set*)**			**Zerqet-Ikherruden (*special set II*)**		
1S	meqq(u)ṛ	-aġ[568]		meqqṛ	-aġ		meqquṛ	-aġ
2S	meqq(u)ṛ	-eḏ	ṯ-	meqqṛ	-eḏ	ṯ-	meqquṛ	-eḏ
3MS	meqq(u)ṛ		i-	meqquṛ		i-	meqquṛ	
3FS	meqq(u)ṛ	-eṯ	ṯ-	meqquṛ		ṯ-	meqquṛ	(-eṯ)
1P	meqq(u)ṛ	-en	n-	meqquṛ		n-	meqquṛ	
2P	meqq(u)ṛ	-en (B/T) -em (T/Z)	ṯ-	meqqṛ	-em	ṯ-	meqquṛ	-em
2FP						ṯ-	meqquṛ	-emt
3P	meqq(u)ṛ	-en		meqqṛ	-en		meqquṛ	-en
3FP							meqquṛ	-ent

The following table illustrates the conjugation of the adjective *mezzi(y)~ meẓẓi(y)* 'small, young' and the Seddat defective verb *meẓẓi* 'to be small/young'.[569]

Conjugation of *mezzi(y)~meẓẓi(y)* '(to be) small'

Taghzut/Bunsar/Zerqet-Bunjel (*special set*)			**Seddat (*regular set*)**			**Zerqet-Ikherruden (*special set II*)**		
1S	mezzi(y	-a)ġ[570]		meẓẓi	-ġ		meẓẓiy	-aġ
2S	mezzi(y	-e)ḏ	ṯ-	meẓẓi	-ḏ	ṯ-	meẓẓiy	-eḏ
3MS	mezzi		i-	meẓẓi		i-	meẓẓi	
3FS	mezzi(y	-e)ṯ	ṯ-	meẓẓi		ṯ-	meẓẓi(y	-eṯ)
1P	mezzi(y	-e)n	n-	meẓẓi		n-	meẓẓi	
2P	mezzi(y	-(e)n (B/T) -(e)m (T/Z)	ṯ-	meẓẓi	-m	ṯ-	meẓẓiy	-em
2FP						ṯ-	meẓẓiy	-emt
3P	mezzi(y	-e)n		meẓẓi	-n		meẓẓiy	-en
3FP							meẓẓiy	-ent

[568] In Bunjel, only the non-conjugated adjectives are found with 1S.

[569] As explained previously, this word shows variation with regard to pharyngealization (*zz* in Taghzut/Bunsar, *ẓẓ* in Seddat/Zerqet) and the final *-y* (present in Bunsar and Zerqet when followed by a suffix).

[570] In Bunjel, only the non-conjugated adjectives are found with 1S.

7.4.3. Arabic Adjectives and Participles

In Taghzut, borrowed Arabic adjectives and participles can also be conjugated. The PNG marking is similar, but not identical to the one found with Berber adjectives. The marking is different in that there is an extra vowel *i* before the PNG suffixes. The scheme and examples follow.

Conjugation of Arabic adjectives and participles in Taghzut

	Scheme		***mezyan* 'good'**		***saken* 'living'**	
1S	X	-iġ	mezyan	-iġ	sakn	-iġ
2S	X	-id̲	mezyan	-id̲	sakn	-id̲
3MS	X		mezyan		saken	
3FS	X	-a	mezyan	-a	sakn	-a
1P	X	-in	mezyan	-in	sakn	-in
2P	X	-im/in	mezyan	-im/in	sakn	-im/in
3P	X	-in	mezyan	-in	sakn	-in

When the stem of Arabic adjective or participle ends in *-i*, this *i* becomes *y* before suffixes, e.g.

	***maši* 'going'**	
1S	mašy	-iġ
2S	mašy	-id̲
3MS	maši	
3FS	mašy	-a
1P	mašy	-in
2P	mašy	-im/in
3P	mašy	-in

7.5. Adjectives and Participles in Relativization Contexts

Adjectives and participles can occur in contexts of relativization. In Senhaja, only Berber adjectives have morphologically derived relative forms. Relative forms of adjectives function as modifiers. There are dialectal differences in the way the relative form of Berber adjectives is built. Arabic adjectives and participles can occur in relative constructions, but have no morphologically derived relative forms.

7.5.1. Berber Adjectives in Relativization Contexts

In Ketama, Taghzut, and Hmed, the relative form of Berber adjectives is built by the suffix *-n* alone and lacks the prefix *i-*. In Bunsar/Zerqet, the relative form of adjectives has the regular scheme as found with verbs, *i-...-n*. In Seddat, where cognate lexemes are obligatorily conjugated with regular PNG markers, the prefix is optional: *(i-)...-n*. As with verbs, the relative form of adjectives normally follows the relative marker *a* or *na*. The relative form is unmarked for gender and number. However, in Taghzut, the relative marker preceding the relative form is *a* with a singular referent, and *i* with a plural referent. This is different from relative constructions with verbs, where the same marker *a* is used in all contexts.[571]

Besides the relative form, there exists an alternative relative construction that can be used in relative clauses. In Ketama and Taghzut, its scheme is: *a* (relative marker) + *ylla* (a petrified 3MS Perfective form of the verb 'to be'), followed by non-relative forms of adjectives.[572] A similar construction is also found in Hmed, where the form of the verb 'to be' is optional. When it is present, it can be frozen *(ylla)*, relative (*yellan*), or conjugated. In the rest of Senhaja (Seddat, Bunsar, Zerqet), an equivalent of this construction with the verb 'to be' in the Perfective is possible, but is only used with the reference to the past. The schemes and examples follow. The relative markers are included in the schemes and examples.

Scheme 1. Relative form of Berber adjectives in Senhaja

Ketama	**Seddat**	**Hmed**	**Bunsar/Zerqet**	**Taghzut**	
a X-n	na (y-)X-n	na X-n	na y-X-n ~n(aḏ) i-X-n	SG	a X-n
SG = PL	SG = PL	SG = PL	SG = PL	PL	i X-n

Example: relative form of *meqq(u)ṛ* 'big': 'who is/are big'

Ketama	**Seddat**	**Hmed**	**Bunsar/Zerqet**	**Taghzut (SG ≠ PL)**
a meqqṛu-n	na (y-)meqqṛ-en	na meqquṛ-en	na y-meqquṛ-en~ n(aḏ) i-meqquṛ-en	a meqqṛ-en (SG), i meqqṛ-en (PL)

[571] Alternatively, one could posit that the relative marker is *a* in the singular (followed by the prefixless relative form), and that there is no relative marker in the plural (while *i* is the prefix of the relative form, as with regular verbs). In either case, there is a difference between the singular and plural forms, whether it is expressed in the relative marker or in the prefix.

[572] A variant with a relative form of the verb 'to be' (*ye-lla-n*) also exists, but is not frequent.

Scheme 2. Berber adjectives in relative constructions (Ketama, Taghzut, Hmed)

	Ketama/Taghzut	Hmed
MS	a ylla X	na (ylla~ye-lla~ye-lla-n) X
FS	a ylla X-ṯ	na (ylla~ye-lla-n~ṯe-lla) X-ṯ
PL	a ylla X-n	na (ylla~ye-lla-n~lla-n) X-n

Example: relative construction with *meqq(u)ṛ* 'big': 'who is/are big'

	Ketama	Taghzut	Hmed
MS	a ylla meqquṛ	a ylla meqquṛ	na (ylla~ye-lla~ye-lla-n) meqquṛ
FS	a ylla meqqṛu-ṯ	a ylla meqqṛ-eṯ	na (ylla~ye-lla-n~ṯe-lla) meqquṛ-eṯ
PL	a ylla meqqṛu-n	a ylla meqqṛ-en	na (ylla~ye-lla-n~lla-n) meqquṛ-en

For example:

(12) (a) *lɛiḏ a mezzi-n* (K/T)
lɛiḏ na meččiḵ-en (H)
festival RM small-RF
(b) *lɛiḏ n(aḏ) i-meẓẓiy-en* (Z)
festival RM RF-small-RF
'Eid which is small' (Lesser Eid, Eid al-Fitr).[573]

(13) (a) *ibeɛɛašen na meččiḵ-en* (H)
sheep:PL RM small-RF
(b) *ibeɛɛašen nna y-meẓẓiy-en* (Z)
sheep:PL RM RF-small-RF
'sheep that are small/young'

7.5.2. Arabic adjectives and participles in relative constructions

There are no morphologically derived relative forms of Arabic adjectives and participles in Senhaja.[574] In Bunsar and Zerqet, seemingly, relative forms of Arabic adjectives are possible, with the same scheme as with the regular verbs and Berber adjectives (*i*-X-*n*). However, such relative forms are found only with those lexemes that have been incorporated into the regular verb class in these varieties, while those

[573] Cf. *lɛiḏ a meqqṛu-n* (K), *lɛiḏ a meqqṛ-en* (T), *lɛiḏ na meqquṛ-en* (H), *lɛiḏ na y-meqquṛ-en* (B/Z), *lɛiḏ n i-meqquṛ-en* (Z) lit. 'Eid which is big' (Bigger Eid, Eid al-Adha, Festival of the Sacrifice).

[574] This is different in Ghomara, where both Berber and Arabic adjectives, as well as borrowed participles, have a relative form (Mourigh 2015: 208, 217).

lexemes that function exclusively as adjectives have no relative forms. Therefore, such relative forms are derived from verbs rather than from adjectives. When Arabic adjectives or participles occur in relative constructions, they simply follow the relative marker (*a*, *na*), with the frozen form of the verb 'to be' in Ketama/Taghzut, optionally present (and optionally conjugated) in Hmed (cf. scheme 2 with the Berber adjectives discussed above). In Zerqet, there are dialectal differences regarding relative constructions with Arabic adjectives and participles. Such constructions are possible in the dialect of Bunjel, but are rare in the dialect of Ikherruden, where relative forms of cognate verbs are used instead. In Bunjel, relative forms of verbs are used alongside relative constructions based on cognate adjectives.

The following tables present the scheme and examples of Arabic adjectives and participles in relative constructions. For Zerqet, the Bunjel dialect is shown. Arabic adjectives can have external or internal plurals, so the suffix *-in* in the scheme does not apply to all examples.[575]

Arabic adjectives and participles in relative constructions

Scheme

	Ketama/Taghzut	**Hmed**	**Seddat/Zerqet**
MS	a ylla X	na (ylla~ye-lla~ye-lla-n) X	na X
FS	a ylla X-a	na (ylla~ye-lla-n~ṯe-lla) X-a	na X-a
PL	a ylla X(PL)(-in)	na (ylla~ye-lla-n~lla-n) X(PL)(-in)	na X(PL)-in

Examples:

Relative constructions with the adjective *mezyan* 'good': 'who is/are good'

	Ketama/Taghzut	**Hmed**	**Seddat/Zerqet**
MS	a ylla mezyan	na (ylla~ye-lla~ye-lla-n) mezyan	na mezyan
FS	a ylla mezyan-a	na (ylla~ye-lla-n~ṯe-lla) mezyan-a	na mezyan-a
PL	a ylla mezyan-in	na (ylla~ye-lla-n~lla-n) mezyan-in	na mezyan-in

Relative constructions with the participle *saken* 'dwelling': 'who is/are dwelling'

	Ketama/Taghzut	**Hmed**	**Seddat/Zerqet**
MS	a ylla saken	na (ylla~ye-lla~ye-lla-n) saken	na saken
FS	a ylla sakn-a	na (ylla~ye-lla-n~ṯe-lla) sakn-a	na sakn-a
PL	a ylla sakn-in	na (ylla~ye-lla-n~lla-n) sakn-in	na sakn-in

[575] For example, the adjective *mezyan* 'good' has an external plural (by means of the suffix *-in* alone), while the adjective *ṭwil* 'tall' forms plural by apophony (the plural stem is *ṭwal*) in addition to the suffix (hence: *ṭwal-in*).

Example sentence:

(14) (a) *argaz* *a* *y-lla* *ṭwil,* *baba* (K/T)
man RM 3MS-be:P tall:MS father
(b) *aryaz* *na* *(ylla)* *ṭwil,* *(ḏ)* *ḇaḇa* (H)
man RM (3MS-be:P) tall:MS PRED father
(c) *aryaz* *na* *ṭwil,* *ḏ* *baba* (Z-Bunjel)
man RM tall:MS PRED father
'The man who is tall, is my father.'

Compare the relative forms (invariable for gender and number) of the related verb *ṭwal* (Ketama/Hmed), *ṭwil* (Zerqet) 'to be(come) tall':

Ketama	**Hmed**	**Zerqet**
a y-ṭwal-en	na y-ṭwal-en	na y-ṭwil-en

In Ketama and Hmed, there is a difference in meaning between the following two examples: example *(a)* with an adjective in the relative construction describes a state, while example *(b)* with a verbal relative form describes a result:

(15) (a) *a* *y-lla* *ṭwil* (K)
RM 3MS-be:P tall:MS
'who is tall'
(b) *a* *y-ṭwal-en* (K)
RM RF-be.tall:P-RF
'who became tall'

In Zerqet, the difference between the two constructions is dialectal: example *(a)* with an adjectival relative construction is used in Bunjel, while example *(b)* with a verbal relative form is common to Bunjel and Ikherruden. The meaning remains the same:[576]

(16) (a) *na* *ṭwil* (Zerqet: Bunjel)
RM tall:MS
(b) *na* *y-ṭwil-en* (Zerqet: Bunjel/Ikherruden)
RM RF-be.tall:P-RF
'who is tall'

[576] To express a result, the verb 'to become' in combination with an adjective is used in Zerqet.

The following example illustrates the use of the relative construction with an Arabic adjective *messus* 'insipid' in a sentence:[577]

(17)	(a)	*nekki*	*u*	*ss-aġ*	*ši*	*atay*	*a*	*y-lla*	*messus* (K)
		1S	NEG	drink:IPF-1S	NEG	tea	RM	3MS-be:P	insipid
	(b)	*nek*	*u*	*ss-aġ*	*š*	*aṭay*	*na*	*messus*	(H/Z-Bunjel)[578]
		1S	NEG	drink:IPF-1S	NEG	tea	RM	insipid	
		'I do not drink tea that is insipid.'							

7.6. The Negation of the Adjectival and Participial Predicate

Negation of adjectival and participial predicates can be achieved by using the same means as negation of nominal predicates: by the negative form of the verb 'to be' (Ketama/Taghzut/Hmed), or by a single negator *maši*. The negation with *maši* is considered an Arabism in Ketama/Taghzut, but can be used nevertheless, especially in specific contexts.[579] Taghzut has additional negation strategies (also used with nominal predicates): by means of the invariable *uliš* (~*uniš*), and by means of the negators *u šay* in succession (placed before the predicate). In addition, different from the nominal predicate, adjectival and participial predicates can be negated by the discontinuous negation *ma... š/ši/šay*. This variant is rare in Zerqet, and rare in Ketama with Berber adjectives (but possible with Arabic adjectives and participles). The discontinuous negation *u...ši/ši/šay* (with *u* as the first negator, as used with verbs) is also found in Ketama, Taghzut, and Hmed, but not in Zerqet. The discontinuous negation with *u* rather than *ma* as the first element is less frequent with Arabic adjectives and participles. The construction of the type NEG (*u* or *ma*) + 'to be' + predicate + *š(i)* is not encountered in Senhaja, different from Ghomara (Mourigh 2015: 294).
The negation strategies are largely the same with Berber adjectives and Arabic adjectives and participles. The difference is that Arabic adjectives and participles are not conjugated in all varieties where Berber adjectives adjectives are conjugated, and that with the discontinuous negation, *u... š* is preferred with the Berber adjectives, while *ma... š* is preferred with the Arabic adjectives and participles. Another difference is that the negation by means of *maši* is more frequent with adjectives than with participles, and is considered less natural with participles in Taghzut and Zerqet. In Hmed, unlike in other parts of Senhaja, the negated form of the Arabic present relevance particle *ṛa-* (Section 5.4.4) can be used to achieve the negation of an

[577] In the Hmed variety, the word *messus* can be used either as a Berber adjective or an Arabic adjective.
[578] Cf. Zerqet-Ikherruden, with a relative form of the verb: *nek u ssay š atay na y-messus-en* 'id.'.
[579] As mentioned previously, the negator *maši* extends the scope of negation to the entire clause.

adjectival or participial predicate. Examples follow. The following examples are with a Berber adjective:

(18) (a) *u lli-ġ š meqquṛ* (K/T/H)
NEG be:P-1S NEG big:MS
(b) *nekki(ni) maši meqquṛ* (H/Z, rare in K/T)
I NEG big:MS
(c) *nekki(ni) ma meqquṛ š* (T/H, rare in K/Z)
I NEG big:MS NEG
(d) *nekki(ni) u meqquṛ š* (K/T/H, *Z)
I NEG big:MS NEG
'I am not big/old.'

An example with an Arabic adjective follows:

(19) (a) *u lli-ġ š mezyan* (K/T/H)
NEG be:P-1S NEG good:MS
(b) *nekki(ni) maši mezyan* (H/Z, rare in K/T)
I NEG good:MS
(c) *nekki(ni) ma mezyan š* (K/H/T, rare in Z)
I NEG good:MS NEG
(d) *nekki(ni) u mezyan š* (K/T/H, *Z)
I NEG good:MS NEG
'I am not good.

Compare with an Arabic participle:

(20) (a) *u lli-ġ š gales* (K/T/H)
NEG be:P-1S NEG sitting:MS
(b) *nekki(ni) maši gales* (K/H, rare in T/Z)
I NEG sitting:MS
(c) *nekki(ni) ma gales š* (K/T/H/Z)
I NEG sitting:MS NEG
(d) *nekki(ni) u gales š* (T/H, rare in K, *Z)
I NEG sitting:MS NEG

Two following constructions are specific to Taghzut. They are valid with a Berber adjective, an Arabic adjective, or an Arabic participle. An example with a Berber adjective follow:

(21) *nekki(ni)* *uliš* *meqquṛ* (T)
I NEG big:MS
nekkini *u* *šay* *meqquṛ* (T)
I NEG NEG big:MS
'I am not big/old.'

In Zerqet, the negated form of 'to be' in the Perfective is understood as a reference to the past. Examples follow:
With a Berber adjective:

(22) *u* *ǧǧi-ġ* *š* *meqquṛ* (Z)
NEG be:P-1S NEG big:MS
'I was not big/old.'

With an Arabic adjective:

(23) *u* *ǧǧi-ġ* *š* *mezyan* (Z)
NEG be:P-1S NEG good:MS
'I was not good.'

In Western Senhaja (Ketama and Taghzut), to refer to the past, the past markers are used in combination with the verb 'to be', while Hmed uses a special form of the verb 'to be', *gelli/a* (cf. Section 5.4.1). To negate such forms, the negated form of 'to be' is used, e.g.

(24) (a) *ara* *lli-ġ* *š* *meqquṛ* (K)
PST be:P-1S NEG big:MS
(b) *u* *gelli-ġ* *š* *meqquṛ*
NEG PST:be-1S NEG big:MS
'I was not big/old.'

Alternatively, the affirmative form of 'to be' can be combined with an adjective or a participle negated by *maši* or by the discontinuous negation (*u...š, ma...š*). The same examples are valid for a Berber or Arabic adjective or participle:

(25) (a) *gelli-ġ* *maši* *meqquṛ* (H)
PST:be-1S NEG big:MS
(b) *gelli-ġ* *ma* *meqquṛ* *š* (H)
PST:be-1S NEG big:MS NEG
gelli-ġ *u* *meqquṛ š* (H)
PST:be-1S NEG big:MS NEG
'I was not big/old.'

In varieties that have conjugated adjectives (cf. Section 7.4), conjugated adjectives can be negated by the same means as verbal predicates (when the reference is made to the present), e.g. by the discontinuous negation *u...š*, e.g.
- With a Berber adjective (Taghzut, Zerqet):

(26) *u* *meqqṛ-eġ* *š* (T)
u *meqquṛ-aġ* *š* (Z)
NEG big-1S NEG
'I am not big/old.'

With an Arabic adjective or participle (can be conjugated in Taghzut, but not in Zerqet):

(27) *u* *mezyan-iġ* *š* (T)
NEG good-1S NEG
'I am not good.'
(28) *u* *sakn-iġ* *š* (T)
NEG dwelling-1S NEG
'I am not dwelling.'

In Taghzut, the negated form of 'to be' can be combined with an affirmative conjugated adjective or a participle, e.g.

(29) *u* *lli-ġ* *š* *meqqṛ-eġ* (T)
NEG be:P-1S NEG big-1S
'I am not big/old.'
(30) *u* *lli-ġ* *š* *mezyan-iġ* (T)
NEG be:P-1S NEG good-1S
'I am not good.'

In Hmed, unlike in other parts of Senhaja, the negated form of the Arabic present relevance particle *ṛa-* can be used to negate such predicates (Berber adjective, Arabic adjective, or Arabic participle), e.g.

(31) *ma* *ṛa-h* *š* *gales* (H)
NEG PRS-3MS NEG sitting:MS
'He is not sitting.'

Alternatively, *ṛa-* can be combined with a negated predicate (with *maši* or *ma…š* or *u… š*):

(32) *ṛa-h* *maši* *gales* (H)
PRS-3MS NEG sitting:MS
'He is not sitting.'

The negator *maši* extends the scope of negation to the entire clause. Compare the following examples:

(33) (a) *ma* *kayen* *š* *ḫaḏiža* (H, rare in Z/K)
NEG EXST:MS NEG Khadija
'There is no Khadija'
(b) *maši* *kayn-a* *ḫaḏiža,* *kayn-a* *Rašida* (H)
NEG EXST-FS Khadija EXST-FS Rashida
'There is no Khadija ('It is not Khadija who is there'), there is Rashida.'

When the negator *maši* is followed by *ma kayen* š, this has the meaning 'It is not that there is no…', e.g.

(34) *maši* *ma* *kayen* *š* *lɛaṣir* (K/H/T/Z)
NEG NEG EXST:MS NEG juice
'It is not that there is no juice.'

7.7. Conclusions

In Senhaja, adjectives and participles constitute distinct morphological classes. There are native Berber and borrowed Arabic adjectives, differing in morphological marking, but fulfilling the same function. Borrowed Arabic participles share some features with adjectives: they can modify the head noun; they distinguish the same number of forms (masculine singular, feminine singular, and plural); Arabic adjectives with external

plurals and participles share the same suffixes to mark the gender and number. In Ketama and Hmed, adjectives are never conjugated, while in Seddat, lexemes cognate with Berber adjectives are obligatorily conjugated with the regular PNG affixes (prefixes and suffixes) and are distinguished from regular verbs only by the lack of MAN distinctions. Some other varieties (Taghzut, Bunsar, Zerqet) have both conjugated and non-conjugated Berber adjectives. Conjugation may be carried out by suffixes only (Taghzut, Bunsar, the Bunjel dialect of Zerqet), or can be regular (the Ikherruden dialect of Zerqet). In Taghzut and Bunsar, Arabic adjectives and participles can also be conjugated. This conjugation is carried out by suffixes only.

When adjectives and participles (conjugated or not) appear on their own, they refer to the present, or no specific time reference is made. The reference to the future and to the past is expressed by means of the auxiliary verb 'to be'. There are different strategies to negate adjectives and participles. Most typically, the negation is achieved by the negated form of the verb 'to be', by a single negator *maši*, or by a bipartite negation. In Zerqet, the strategy depends on whether the adjective is conjugated or not.

In subject relative clauses, a special form (the so-called relative form) of an adjective can be used. In Senhaja, only Berber adjectives have morphologically derived relative forms. Arabic adjectives and participles can occur in relativization contexts, but have no morphologically-derived relative forms.

The following features of adjectives in Senhaja are important to underline:

1) adjectives form a separate morphological class, with distinct markers;
2) (unconjugated) adjectives have no prefixes in Senhaja;
3) when adjectives are used predicatively, no predicative particle is used in any Senhaja variety; by contrast, when nouns are used predicatively, the predicative particle can be used in Hmed, and is required in Zerqet;
4) adjectives are conjugated in parts of Senhaja, making them quasi-verbs;
5) when conjugated, adjectives either have a special marking carried out by suffixes only (Taghzut, Bunsar, parts of Zerqet), or a regular marking (Seddat, parts of Zerqet);
6) Berber adjectives tend to have a particular pattern (long C2), e.g. *meqquṛ* (pan-Senhaja) 'big', *mezzi~meẓẓiy* (most varieties) 'small', *meččiḵ* (Hmed) 'small', *messus* (Hmed) 'insipid'.

The suffixal conjugation of adjectives and participles recalls the stative conjugation found in many Berber varieties. However, conjugated adjectives in Senhaja are not stative verbs, because they lack MAN distinctions. Conjugated adjectives can be regarded as an intermediate category between adjectives and verbs.

8. Pronouns

8.1. Introduction

The Senhaja pronominal system consists of native Berber pronouns (Sections 8.2-8.5) and borrowed Arabic pronouns (Section 8.6). In what follows, we first present the Berber pronouns. The major types of Berber personal pronouns are the independent (free) pronouns (Section 8.2) and bound pronouns. Bound pronouns include clitic pronouns and pronominal suffixes (cf. Galand 1966; Kossmann 2012a: 58). Clitic pronouns have been treated above with the ventive clitic (Section 5.3). In this chapter, we treat pronominal suffixes (Section 8.3). Pronominal suffixes are pronouns suffixed to prepositions or to a limited set of kinship nouns. Section 8.4 treats pronominal heads, including demonstrative pronouns (Section 8.4.3), and Section 8.5 the indefinite pronouns. On the interrogative pronouns used with prepositions (i.e. prepositional interrogatives), cf. Section 9.5.

8.2. Independent Personal Pronouns

8.2.1. Overview of Forms

Independent personal pronouns in Senhaja express person (first, second, and third), number (singular and plural), and gender (masculine and feminine). The gender is distinguished in the second person and third person singular in all Senhaja varieties, and in the second person and third person plural only in Eastern Senhaja (Zerqet and Mezduy). For the first and second person singular, most Senhaja varieties have "short" and "long" forms.[580] The independent pronouns are shown in the following Table.[581]

Some pronouns have different forms which are either in free variation or reflect dialectal preferences. The *k* and *ḵ* in the second person singular pronouns (2MS and 2FS) are almost always in free variation, and the forms listed in the table present the preferred (most frequent) variant. In the case of Seddat and Bunsar, both variants are equally frequent, also depending on the dialect. For 1P, in Ketama, *nukki* is more frequent in Beni Aisi than in Beni Hmed. In Zerqet, for 1P, *nukni* and *nukna* are found in Ikherruden, while *wukna* is the preferred variant in Bunjel. In Zerqet, the gender is optionally distinguished in the 2P and 3P pronouns. The specific 2FP and 3FP pronouns are more frequent in Wersan and Ikherruden dialects than in Bunjel.

[580] The "extension" of pronouns by means of final *-i, -in, -ini* is quite common in Berber (cf. Kossmann 2017b for Seghrushen). In Seghrushen, the longer forms are more "emphatic" than the short ones. This is normally not the case in Senhaja.

[581] Cf. Lafkioui 2007a: 116 and maps 128-137.

Senhaja independent pronouns

	Ketama	Taghzut	Seddat	Bunsar	Hmed	Zerqet	Mezduy
1S	nek(k) nekki(n) nekkini	(nek(k)) nekki(n) nekkini	nek(k) nekkini nekkiniṯ	nek(k) nekki(ni)	nek(k) nekkini	nek(k) nekkini	nek(k)
2S	ḵeğ(ğ) ḵeğği(n) ḵeğğini	(keğ(ğ)) keğği(n) keğğini	ḵ/keğ, ḵež ḵ/keğğini	ḵ/keğ(ğ) ḵ/keğğini	ḵeğ(ğ) ḵeğğini	ḵ/keğ(ğini) ḵež(ži(ni))	ḵer
2F	ḵem(m) ḵemmi(n) ḵemmini	(kem(m)) kemmi(n) kemmini	ḵem(m) ḵemmini	ḵ/kem(m) kemmi(ni)	ḵem(m) ḵemmini	ḵem(m) ḵemmini	ḵem(m)
3MS	n(e)tta	nṭṭa(n(i))	netta, neṭṭa	n(e)tta(ni)	nṭta(ni)	n(e)tta(ni)	netta
3FS	n(e)ttaha	nṭṭaha(n)	nettaṭa neṭṭaṭa	ntaṭa(ni)	nṭṭaṭa(ni)	ntaṭa(n)	nettaṭa
1P	nukni, nukki	nekni	nukni, nukna(ġ)	nekni, nekna, nukni	nukni	nukni, nukna, wukna	nukni, nukna
2M	ḵunni	kenniw	ḵuni(mi) ḵenniwi	ḵ/keniwi	ḵenniw(i)	ḵennami, ḵenniwi, ḵennawi	ḵenniw
2PF						ḵennamṯi ḵennumṯi ḵennumi	(ḵennindi)
3MP	nehnim	(ne)hnim(i) (ne)hmim(i) lehmim	ntumi, nṭumi	nnimi, ntumi, numi	nehnam(i) nehnum(i)	ntami, ntumi	neṯnin
3FP						ntamṯi ntumṯi	(neṯnindi)

8.2.2. Variation in Senhaja

The following comments regarding the form of independent pronouns in Senhaja can be made:

1) Short and long(er) forms of pronouns

While most varieties know "short" and "long(er)" forms of independent pronouns, their usage and frequency vary depending on the dialect. Longer forms of pronouns (extended by *-i*, etc.) are more common in some varieties than in others. Within Western Senhaja, only Taghzut shows a preference for the longer forms (e.g. of 1S, 2MS, and 2FS pronouns). Also, Taghzut has longer forms for pronouns which are normally short in other Western Senhaja varieties, e.g. 3MS Ketama *netta* vs. Taghzut *nṭṭan(i)*, 3FS Ketama *nettaha* vs. Taghzut *nṭṭahan*, and 3P Ketama *nehnim* vs. Taghzut *nehnimi*. Longer forms are also found in Central and Eastern Senhaja (Hmed, Bunsar, Zerqet, but not in Mezduy).

Forms extended by *-i* (rather than by *-ini*) are more frequent in usage in Ketama and Taghzut than elsewhere. Other Senhaja varieties have 1S *nek/nekkini,* 2MS *ḵeğ/ḵeğğini,* 2FS *ḵem/ḵemmini* (rather than *nekki, ḵeğği*, and *ḵemmi*), although in the Tamadit dialect of Bunsar, *i*-final forms are also current. In Seddat, 1S pronoun can be extended to *nekkiniṯ*.

2) Fricative *ḵ* vs. stop *k* (second person pronouns)

Fricative *ḵ* in Ketama 2MS *ḵeğği*, 2FS *ḵemmi*, 2P *ḵunni* (cf. Hmed 2MS *ḵeğ*, 2FS *ḵem*, 2P *ḵenniw*) corresponds to a non-fricative *k* in Taghzut (2MS *keği*, 2FS *kemmi*, 2P *kenniw*). In Seddat and Zerqet, both variants exist for 2MS: *ḵeğ/keg*, while only *ḵ* is found in 2FS (*ḵem*). In Bunsar, *k* vs. *ḵ* depends on the dialect: Tamadit *k* corresponds to *ḵ* in other dialects (2MS *keğ/ḵeğ*, 2FS *kem/ḵem*, 2P *keniwi/ḵeniwi*).

3) *t* > *h* (3FS)

The *h* in Ketama and Taghzut 3FS *nettaha/nṭṭaha* corresponds to *ṯ* in other Senhaja varieties (*nt(t)aṯa* and variants). The original *ṯ* (< *t*) became *h* in Ketama and Taghzut. On *ṯ* > *h* > Ø (second stage of spirantization), see Section 2.1.4.2. In *nettaha*, *ṯ* is preserved as *h* probably due to its intervocalic position. Cf. also clitic pronouns of the third person, where *ṯ* becomes *h* in intervocalic position.

4) *tt* > *ṯṯ* (3MS, 3FS)

In 3MS and 3FS pronouns, *tt* became *ṯṯ* in Taghzut and Hmed (e.g. 3MS *netta* > *neṯṯa*). In Seddat, *tt* > *ṯṯ* in the dialects of Talarwak and Tidwin.

5) Gemination (1S, 2FS, 3MS, 3FS)

In Senhaja Berber, tense consonants are usually degeminated word-finally or when not followed by a vowel. Hence, 1S *nek* vs. *nekki(ni)*, 2FS *ḵem* vs. *ḵemmi(ni)*, etc. In the third person, Bunsar has gemination in 3MS *netta*, but no gemination in 3FS *ntaṭa*.

6) Vowel *u* vs. *e* (1P, 2P)

In 1P and 2P pronouns, the vowel *u* in some Senhaja varieties corresponds to *e* (schwa) in others. The 1P pronoun (*nukni* and variants) has the vowel *u* in Ketama, Seddat, Hmed, and Zerqet, while Taghzut and most dialects of Bunsar have schwa (*nekni*). In the 2P pronoun, the vowel is *u* in Ketama (*ḵunni*) and the majority of Seddat (*ḵuni*), while the other Senhaja varieties have schwa: Taghzut/Hmed *kenniw*, Bunsar *keniwi*, Zerqet *ḵennami*. The Talarwak dialect of Seddat has *ḵeniwi* alongside *ḵuni*. Bunsar has forms both with *u* and *e* in 1P depending on the dialect: general 1P *nekni*, *nekna* vs. Tamadit *nukni*. Likewise, Hmed and Zerqet have *u* only in 1P (*nukni*), but not in 2P (Hmed *ḵenniw*, Zerqet *ḵennami*).

7) 3P pronoun

There are many forms of the 3P pronoun in Senhaja: Ketama and Taghzut *nehnim*, Seddat *ntumi* (Talarwak *nṭumi*), Bunsar *nimi, ntumi*, *numi*, Hmed *nehnam(i), nehnum(i)*, Zerqet *ntami, ntumi*.

8) 2FP and 3FP

In the majority of Senhaja, gender is distinguished only in second and third person singular in independent pronouns. Only the easternmost Senhaja varieties (Zerqet and Mezduy) allow for a gender distinction in the second and third person plural. In these varieties, the 2FP and 3FP forms refer to groups of women or feminine nouns. However, it is also possible to use the common 2P and 3P pronouns in this case. The distinct 3FP pronouns are more frequently used than 2FP pronouns.

The following table compares independent pronouns in Senhaja, Ghomara (Mourigh 2015), and Bujay (Tarifiyt). For Tarifiyt in general, see Lafkioui 2007a.

Ghomara, Senhaja, and Bujay independent pronouns

	Ghomara	Senhaja	Bujay
1S	nekk(i), nekkin(eṯ)	nek, nekki, nekkin(i)	neš, niš
2S	kežž, keǧi, keǧin(eṯ)	ḵeǧ, ḵeǧǧi, ḵeǧǧin(i)	šek
2F	kemm(i), kemmin(eṯ)	ḵem, ḵemmi, ḵemmin(i)	šem
3MS	netta	netta(ni), nṭṭa(n(i))	netta
3FS	nettaṯa	nettaha, nettaṯa(n(i)), nṭṭaha, nṭṭaṯani	nettaṯ
1P	nuḵna	nukki, nukni, nukna(ġ), nekni	nešnin
2PM	kunna	ḵunni, kenniw(i), ḵuni(mi), ḵennami	ḵenniw
2PF		ḵennamṯi, ḵennumṯi (*Z*), ḵennindi (*M*)	ḵennind
3MP	nihma	nehnim(i), ntumi, nimi, numi, nehnam(i), nehnum(i), ntami, neṯnin	neṯnin
3FP		ntamṯi, ntumṯi (*Z*), neṯnindi (*M*)	neṯnind

8.3. Pronominal Suffixes with Nouns and Prepositions

There are two kinds of pronominal suffixes in Senhaja: those used with nouns (with a limited set of kinship terms, see Section 8.3.1 and cf. Appendix 3 on the kinship terminology) and those used with prepositions (Section 8.3.2).

8.3.1. Pronominal Suffixes with Kinship Terms

Some kinship terms accept pronominal suffixes to express possession.[582] These kinship terms belong to class III (i.e. non-affix class, see Section 6.4). The remaining kinship nouns express possession as regular nouns, i.e. they use a construction with the Genitive preposition *n-*. In most Senhaja varieties, the pronominal suffixes following kinship terms are largely the same as those following prepositions, except for the first person: a group of kinship terms (class III) are inherently possessed and first singular reference is understood in the absence of any suffix. In Mezduy, with all plural forms

[582] For a list of the kinship terms and more details on which kinship nouns accept pronominal suffixes, see Appendix 3.

of possessive suffixes, an extra element *ṯ* is inserted between the kinship term and the suffix (as in Tarifiyt). The distinct 2FP and 3FP forms are rare in Zerqet, while in Mezduy, only 3FP has been found. In Ketama and Taghzut, there are restrictions on the use of plural forms of pronominal suffixes with kinship terms. Also, in these varieties, nouns that accept pronominal suffixes can instead use a construction with the Genitive *n-*.

Within the Ketama variety, there are dialectal differences: the dialects of Beni Aisi and Beni Hmed (K1 in the tables below) do not accept plural possessive suffixes with kinship terms, while these are possible in Talghunt and Lmekhzen (K2 in the tables below). However, even in Talghunt and Lmekhzen, there is no 1P suffix. Instead, the construction with the Genitive *n-* is used (1P *n-na* 'our'). In Taghzut, by contrast, the 1P suffix is found with kinship nouns, while 2P suffix is not; instead, a construction with the Genitive *n-* with the 2P suffix is used. The following table lists pronominal suffixes used with kinship nouns in Senhaja.[583] A construction with the Genitive preposition *n-* is used when the suffix is not accepted (indicated by --- in the table). Parentheses (...) indicate that the variant is rare in a given dialect.

Pronominal suffixes used with kinship terms

	Sfx	**Var.**		**Sfx**	**Var.**
1S	Ø	all	**1P**	-naġ, -neġ, -na, -ṯ-neġ, ---	most, T1/S, T2, M, K
2MS	-ḵ	all	**2P**	-wen (wem), -ṯ-wen, ---	most incl. K2 (Z2, M), M, K1/T
2FS	-m	all	**2FP**	(-went)	Z
3S	-s	all	**3P**	sen, ṯ-sen, ---	most incl. K2, M, K1
			3FP	(-sent), (ṯ-send)	Z, M

The following table provides examples: pronominal suffixes following the noun *gma* 'brother' in Ketama/Taghzut/Seddat, and following the noun *yemma* 'mother' in Seddat/Hmed/Zerqet/Mezduy.[584] The noun *yemma* is realized as *may-* when followed by a suffix in these varieties. When followed by the plural pronominal suffixes (starting in *ṯ*), the noun takes the form *ma-* in Mezduy.

[583] K1 stands for the Beni Aisi and Beni Hmed dialects; K2 stands for the Talghunt and Lmekhzen dialects of Ketama. T1 stands for the Lqela dialect of Taghzut, and T2 for the dialects outside Lqela, such as Beni Khlef.

[584] The noun *gma* used in Western Senhaja corresponds to *ašqiq* in the majority of Senhaja (belonging to class I and thus not accepting pronominal suffixes). In Seddat, both *gma* (usually realized as *ḡma*: spirantization is ignored in the table) and *ašqiq* are used.

Examples of pronominal suffixes with kinship terms

	'brother' K/T/S	**Var.**	**'mother' S/H/Z/M**	**Var.**
1S	gma	K/T/S	yemma	S/H/Z/M
2MS	gma-k̲	K/T/S	may-ek̲	S/H/Z/M
2FS	gma-m	K/T/S	may-em	S/H/Z/M
3S	gma-s	K/T/S	may-es	S/H/Z/M
1P	gma-neġ, gma-na ---	T1/S, T2 K	may-naġ, may-neġ ma-t̲-neġ	H/Z, S M
2P	gma-wen, ---	K2/S K1/T	may-wen, ma-t̲-wen (ma-t̲-wem)	S/H/Z, M (M)
2FP	---		(may-went)	Z
3P	gma-sen, ---	K2/T/S, K1	may-sen, ma-t̲-sen	S/H/Z, M
3FP			(may-sent)	Z

The following table compares pronominal suffixes used with kinship terms in Senhaja, Ghomara (Mourigh 2015), and Bujay Tarifiyt.[585]

Ghomara, Senhaja, and Bujay kinship pronominal suffixes

	Ghm.	**Snh.**	**Bujay**		**Ghm.**	**Snh.**	**Bujay**
1S	Ø	Ø	Ø	**1P**	---	-na(ġ), -t̲-neġ, ---	-t̲-neġ
2MS	-k̲	-k̲	-k̲	**2P**	---	-wen, -t̲-wen, ---	-t̲-kum
2FS	-m	-m	-m	**2FP**	---	(-went), ---	-t̲-k̲end
3S	-s	-s	-s	**3P**	---	-sen, -t̲-sen, ---	-t̲-sen
				3FP	---	(-sent), ---	-t̲-send

8.3.2. Pronominal Suffixes with Prepositions

8.3.2.1. Overview of Forms and Examples

In Senhaja (as in other Berber varieties), pronouns can be suffixed to prepositions. Often, the form of the preposition used with pronominal suffixes differs from the corresponding form used before a noun (cf. Section 9.2). The following table lists pronominal suffixes in Senhaja.

[585] Ghomara lacks the plural forms of kinship pronouns, like Beni Aisi and Beni Hmed dialects of Ketama. For nominal suffixes used in different Tarifit varieties, see Lafkioui 2007a.

Pronominal suffixes used with prepositions

	Sfx	Var.		Sfx	Var.
1S	-i	all	**1P**	-naġ, -neġ, -na	most, T1/S/M, K/T2
2MS	-ḵ	all	**2P**	-wen (wem), -un	most incl. T1/Z/M (Z2/M), K/T2
2FS	-m	all	**2FP**	(-went)	(Z)
3S	-s	all	**3P**	-sen	all
			3FP	(-sent, -send))	(Z/M, M)

The 2FP has only been found in Zerqet, while 3FP forms have been found in Zerqet and Mezduy. The following table lists pronominal suffixes following the preposition 'with' (comitative): Ketama/Taghzut *iḏ-*, Hmed/Zerqet/Mezduy *kiḏ-*.

Pronominal suffixes following preposition 'with' (comitative)

	iḏ- **(K/T)**	***kiḏ-*** **(H/Z/M)**		***iḏ-*** **(K/T)**	***kiḏ-*** **(H/Z/M)**
1S	iḏ-i	kiḏ-i	**1P**	iḏ-na (K/T2), iḏ-neġ (T1)	kiḏ-naġ, kiḏ-neġ (M)
2MS	iḏ-eḵ	kiḏ-eḵ	**2P**	iḏ-un (K/T2), iḏ-wen (T1)	kiḏ-wen (kiḏ-wem)
2FS	iḏ-em	kiḏ-em	**2FP**	---	kiḏ-went (Z)
3S	iḏ-es	kiḏ-es	**3P**	iḏ-sen	kiḏ-sen
			3FP	---	kiḏ-sent (Z/M), kiḏ-send (M)

8.3.2.2. Prepositional Suffixes in Senhaja, Ghomara, and Tarifiyt

The following table compares pronominal suffixes in Senhaja, Ghomara (Mourigh 2015), and Bujay Tarifiyt.[586]

Ghomara, Senhaja, and Bujay pronominal suffixes

	Ghm	Snh	Bujay		Ghm	Snh	Bujay
1S	-i, -y	-i	-i	**1P**	-naḫ	-naġ, -neġ, -na	-neġ
2MS	-(e)ḵ	-(e)ḵ	-(e)ḵ	**2P**	-un, -wen	-wen, -un	-ḵum
2FS	-(e)m	-(e)m	-(e)m	**2FP**	---	--- (-went, Z)	-ḵend
3S	-(e)s	-(e)s	-(e)s	**3P**	-sen	-sen	-sen
				3FP	---	--- (-sent, send, Z/M)	-send

[586] For forms of pronominal suffixes found in different Tarifit varieties, see Lafkioui 2007a.

8.3.2.3. Pronouns with the Genitive Preposition *n-*

The Genitive preposition *n-* followed by the pronominal suffixes expresses possession: there are no true possessive pronouns in Senhaja. The preposition has the form *n-* when followed by a consonant, and *nn-* when followed by a vowel, including the schwa. The 1S form *inu* is irregular. The distinct 2FP and 3FP forms are rare (Z/M).

The Genitive *n* with pronominal suffixes

	Form	Variety		Form	Variety
1S	inu	all	**1P**	n-naġ, n-neġ, n-na	most, T1/S/M, K/T2
2MS	nn-ek̲	all	**2P**	n-wen, (n-wem), nn-un	most incl. T1/Z/M, (Z2/M), K/T2
2FS	nn-em	all	**2FP**	(n-went)	Z (rare)
3S	nn-es	all	**3P**	n-sen	all
			3FP	(n-sent, n-send)	Z/M, M (rare)

8.4. Pronominal Heads and Demonstratives

When a Noun Phrase is constituted by a pronominal form followed by a determination, such as a relative or a possessive phrase ('the one that…', 'the one of…'), special pronominal forms can be used. Such forms are called here *pronominal heads* following Kossmann (2011: 84, 113-119).[587] In addition, pronominal heads can be combined with deictic clitics in order to form demonstratives (Section 8.4.3). With the final *-yeḍ*, pronominal heads form words for 'other' (Section 8.4.4). In most Senhaja varieties, demonstratives are more frequently used as heads of relative and possessive phrases than bare pronominal heads. Especially plural forms of pronominal heads are very rare in discourse, and demonstratives are used instead.

8.4.1. Pronominal Heads with Relative Clauses

Bare pronominal heads can function as heads of relative phrases in Ketama, Taghzut, and Zerqet.[588] In Ketama, the masculine singular and the (common) plural forms are identical. It is impossible to state with certainty if the pronominal heads in Ketama

[587] Pronominal heads are *support de détermination* in Galand's terminology (1966, 1974, 2002a, 2010: 155-6). In Prasse's terminology, they are *pronoms d'appui* (Prasse *et al*. 2003), and in Heath's terminology, they are *demonstratives used as internal heads* (Heath 2006: 624).

[588] In the other varieties (Hmed, Bunsar, and Mezduy), only demonstrative or anaphoric pronouns are used as heads of relative clauses.

include the final *-a*, or whether *a* is the following relative marker (see below). In Taghzut, the bare pronominal head is rarely used with a plural referent when followed by a relative form of the verb, but can be found with adjectives. In this case, the vowel *a* alternates with *i* in the plural, although the variant with *a* is also found. Again, the final *a* can be analyzed as the following relative marker. In Zerqet, the gender is obligatorily distinguished both in the singular and in the plural. The masculine singular and plural forms are identical, while the feminine singular is identical with the feminine plural.[589]

MS	**FS**	**MP**	**FP**	**Variety**
wa	ṯa	wa (=MS)	wa (=MP=MS)	K
wa	ṯa	wi (~ wa)	wi (~ wa) (=MP)	T
win	ṯin	win (=MS)	ṯin (=FS)	Z

The following table illustrates pronominal heads followed by the relative form of the verb *fseḍ* 'to spoil'. The phrase means 'the one(s) that spoiled'. As mentioned above, in Taghzut, bare pronominal forms are rare with a plural referent when followed by a relative form of the verb.

'the one(s) that spoiled'

MS	**FS**	**MP**	**FP**	**Variety**
wa y-fesḍ-en	ṯa y-fesḍ-en	=MS	=MS	K
wa y-fesḍ-en	ṯa y-fesḍ-en	(wi y-fesḍ-en~wa y-fesḍ-en)	=MP	T
win i-fesḍ-en	ṯin i-fesḍ-en	=MS	=FS	Z

Compare the following table showing pronominal heads followed by the relative form of the Berber adjective *mezzi* (K/T) ~ *meẓẓiy* (Z) 'small/young'. In Taghzut, *i* is obligatory in the plural forms. This *i* could be interpreted as a plural form of the relative marker *a* used with Berber adjectives (cf. Section 4.4.8).

'the one that is small/the ones that are small'

MS	**FS**	**MP**	**FP**	**Variety**
wa mezzi-n	ṯa mezzi-n	=MS	=MS	K
wa mezzi-n	ṯa mezzi-n	wi mezzi-n	=MP	T
win i-meẓẓiy-en	ṯin i-meẓẓiy-en	=MS	=FS	Z

[589] The vowel *i* is present both in the singular and plural forms in bare pronominal heads. However, in demonstratives (discussed below), the vowel *a* in the singular alternates with *i* in the plural. The element *n* is likewise absent in demonstratives, except for the anaphoric demonstrative *wanna*.

As mentioned above, for Ketama and Taghzut, it is impossible to state with certainty if the pronominal heads include the final vowel *a* (Taghzut *i* in the plural), or if *a* is the following relative marker (Taghzut *i* with the following plural relative forms of adjectives). There are basically three scenarios: 1) *a* is part of the pronominal head; 2) *a* is the following relative marker; 3) there are two vowels underlyingly, but they coalesce. These different scenarios yield the same surface form, so the difference is only visible in the gloss:

1) *a* as part of the pronominal head
   wa *y-fesḍ-en* (K/T)
   PH:M RF-spoil:P-RF
2) *a* as a relative marker
   w *a* *y-fesḍ-en* (K/T)
   PH:M RM RF-spoil:P-RF
3) two vowels underlyingly
   wa *a* *y-fesḍ-en* (K/T)
   PH:M RM RF-spoil:P-RF

Only Taghzut allows for a distinct plural marking (optional with relative forms of the verb). Again, different elision scenarios are possible. In fact, it is not clear if Ketama originally distinguished a distinct plural form *wi* (as in Taghzut), or whether number is underlyingly unmarked (as in Zerqet). Compare:

1) *a/i* as part of the pronominal head
   wa *y-fesḍ-en* (K/T)
   PH:PL RF-spoil:P-RF
   wi *y-fesḍ-en* (T)
   PH:PL RF-spoil:P-RF
2) *a* as a relative marker
   w *a* *y-fesḍ-en* (K/T)
   PH:PL RM RF-spoil:P-RF
3) two vowels underlyingly
   wa *a* *y-fesḍ-en* (K/T)
   PH:PL RM RF-spoil:P-RF
   wi *a* *y-fesḍ-en* (T)
   PH:PL RM RF-spoil:P-RF
   ‘the ones that spoiled’

The existence of the form *wi y-fesḍ-en* in Taghzut suggests that at least in this variety, the final *-i* is better understood as part of the pronominal form itself, as the following relative marker must be *a* (with relative forms of the verb).

8.4.2. Pronominal Heads in Genitive constructions

The use of pronominal elements with Genitival modifying phrases has been found throughout Senhaja. Again, only Taghzut variety marks number. In most varieties (Ketama, Seddat, Hmed, and Bunsar), the masculine singular and the common plural forms are identical. In Zerqet and Mezduy, there is a distinction in gender (both with the singular and plural referents), while the number is unmarked (MS = MP, FS = FP).

MS	**FS**	**MP**	**FP**	**Variety**
win	ṯin	= MS	= MS	K/S/H/B
wan	ṯan	win	win	T
win	ṯin	= MS	= FS	Z/M

For some varieties (Ketama/Hmed/Zerqet), the final *-n* can be interpreted as underlyingly part of the pronoun, or as the following Genitive preposition 'of':

1) *-n* underlyingly part of the pronoun + Genitive *n* (one of them elided)
   win n ḤHalid
   PH GEN Khalid
2) *n* as the Genitive preposition
   wi n ḤHalid
   PH GEN Khalid
   'the one(s) of Khalid'

When the following noun starts in a vowel, there is no gemination of *n* in Hmed/Zerqet/Mezduy, while *n* is long in Taghzut/Seddat/Bunsar. In Ketama, gemination is optional:

1) no gemination
   win Ø uḫam (H)
   winˆ Ø uḫyam (Z/M)
   PH GEN house:EA
2) gemination
   wan n uḫyam (T)
   win n uḫyam (S/B)
   PH GEN house:EA

3) optional gemination

win	*(n)*	*uḫyam*	(K)
PH	GEN	house:EA	

'the one of the house'

For the varieties with the long *n*, the situation is clear: the pronoun ends in *-n* and is followed by the Genitive *n*. However, also for the varieties without gemination (H/Z/M), the underlying construction can be the same, while the Genitive *n* is simply assimilated to the following *u-* of the EA (cf. Section 2.4.1.3). In Ketama, where gemination is optional, the alternative form of the pronoun could be *wi*. This, in fact, could have also been the original form of the pronominal head followed by the relative clauses, while *wa* would be a combination of the pronoun *wi* with the following relative marker *a*. In either case, pronominal heads are unmarked for number in Ketama.

8.4.3. Demonstrative Pronouns

Demonstratives are linguistic expressions serving "to coordinate the interlocutors' joint focus of attention" on a reference object (Diessel 2006: 464).[590] In Senhaja, with some caveats, most demonstrative pronouns can be analyzed as pronominal heads with deictic clitics (cf. Section 6.6). Again, there is a three-way distinction in exophoric deixis (proximal, medial, and distal) in most Senhaja varieties, with the additional anaphoric demonstratives. As expected, Ketama and Taghzut employ the distal demonstrative as anaphoric. Most varieties distinguish masculine singular, feminine singular, and common plural forms. Seddat, Zerqet, and Mezduy distinguish a separate FP form. In Bunsar, the separate FP forms are possible, but not obligatory (and quite rare). As mentioned previously, demonstratives can function as heads of relative and possessive phrases (more often than bare pronominal heads). The following table presents the forms used in Senhaja.[591]

[590] The primary function of demonstratives is considered to be coordination of attention on objects in space (Tomasello 2008). For a survey of demonstratives from a crosslinguistic perspective, see Diessel 1999, which covers different aspects of demonstratives, including grammaticalization. For a recent study of demonstratives in discourse, see Næss, Margetts, & Treis 2020.

[591] Cf. Lafkioui 2007a: 154 and maps 185-196.

Demonstrative pronouns

	MS	FS	(M)P	FP	Variety
PROX	waḍ(ah) wahaḍ(ah)	ṯaḍ(ah) ṯahaḍ(ah)	wiḍ(ah) wihiḍ(ah)	=MP	K
	waḍi	ṯaḍi	wiḍi	=MP	T
	wadda	ṯadda	wida	=MP	H
	wada	ṯada	wida	ṯida	S/B/Z/M[592]
	waḍa	ṯaḍa	wiḍa	ṯiḍa	Z-Ikh.[593]
MED	---	---	---	---	K
	wayes	ṯayes	wiy(ye)s~ miy(ye)s	=MP	T
	wadina	ṯadina	widina	ṯidina	S/H/B/Z/M
	waḍina	ṯaḍina	wiḍina	ṯiḍina	Z-Ikh.
DIST	waḍin(ah)	ṯaḍin(ah)	wiḍin(ah)	=MP	K
	wayen~ wayenna(h)	ṯayen~ ṯayenna(h)	wiy(ye)n~ miy(ye)n~ wiyenna(h)	=MP	T
	wadin	ṯadin	widin	ṯidin	S/H/B/Z/M[594]
	waḍin	ṯaḍin	wiḍin	ṯiḍin	Z-Ikh.
ANP	=DIST				K/T
	wanna	ṯanna	winna	ṯinna	S/H/B/Z/M

The following table shows how demonstratives correspond to postnominal deictics. There is not always a one-to-one correspondence. Thus, in many varieties (H/S/B/Z/M), the proximal clitic is *yya* (although *dda* is found in parts of Hmed and Bunsar), while the proximal demonstrative pronoun is *wad(d)a*. Similarly, in these same varieties, the distal clitic is *yyen* (although *ddin* is found in parts of Hmed and Bunsar), while the distal demonstrative pronoun is *wadin*.

[592] Bunsar: MP *wida* ~ *winda*; FP *wi(n)da* (same as MP) ~ *ṯida* ~ *ṯinda*.

[593] The Ikherruden dialect differs from Bunjel and Wersan dialects in spirantization. For example, for MS:PROX, *waḍa* is found in Ikherruden, while *wada* is found in Bunjel and Wersan.

[594] Bunsar: MP *widin* ~ *windin*; FP *wi(n)din* (same as MP) ~ *ṯidin* ~ *ṯindin*.

Postnominal deictic clitics and demonstratives

		MS	FS	(M)P	FP	Variety
PROX	aḏ, PL iḏ	waḏ	ṯaḏ	wiḏ	=MP	K
	aḏi, PL aḏi	waḏi	ṯaḏi	wiḏi	=MP	T
	dda; yya	wadda	ṯadda	wida	=MP	H
	dda; yya	wada	ṯada	wida	(ṯida)	B
	yya	wada	ṯada	wida	ṯida	S/Z/M
MED	(da)	---	---	---	---	K
	ayes, PL iyyes	wayes	ṯayes	wiyyes	=MP	T
	ddina; ina	wadina	ṯadina	widina	=MP	H
	ddina; ina	wadina	ṯadina	widina	(ṯidina)	B
	ina	wadina	ṯadina	widina	ṯidina	S/Z/M
DIST	aḏin, PL iḏin	waḏin	ṯaḏin	wiḏin	=MP	K
	ayen, PL iyyen	wayen	ṯayen	wiyyen	=MP	T
	yyen; ddin	wadin	ṯadin	widin	=MP	H
	yyen; ddin	wadin	ṯadin	widin	(ṯidin)	B
	yyen	wadin	ṯadin	widin	ṯidin	S/Z/M
ANP	=DIST	=DIST				K/T
	nna	wanna	ṯanna	winna	ṯinna	S/H/B/Z/M

In postnominal deictics, only Ketama and Taghzut mark the number. In bare pronominal heads, only Taghzut marks the number. In demonstratives, the number is marked in all varieties. In words for 'other' based on pronominal heads (discussed below), the number is also consistently marked.

8.4.4. Words for 'Other'

Like demonstratives, the words for 'other' are based on pronominal heads. The following table lists the forms.[595]

MS	FS	MP	FP	Variety
wayeḏ	ṯayeḏ	wiyyeḏ	=MP	K/T/S
wayeḏ	ṯayeḏ	wiyyaḏ	=MP	H/B
wayeḏ	ṯayeḏ	wiyyaḏ	ṯiyyaḏ	Z/M

[595] Cf. Mourigh 2015: 214 for Ghomara and Lafkioui 2007a: 151 (and maps 181-184) for the Rif.

The masculine singular *wayeḍ* and its feminine equivalent *ṯayeḍ* are found across Senhaja. Ketama, Taghzut, and Seddat have a common plural form *wiyyeḍ*, while Hmed and Bunsar have a common plural *wiyyaḍ*.[596] In Zerqet and Mezduy, *wiyyaḍ* is masculine plural, while feminine plural is *ṯiyyaḍ*. These forms can either be used on their own (when they function as head nouns) or follow a noun (in noun modification).[597] In Mezduy, these forms can only functions as heads.

Some varieties also employ a different word for 'other', that only functions as a modifier: *yaḍen* (Hmed and Bunsar) and *nnaḍen* (Zerqet and Mezduy). These words are invariable for gender and number. In contexts of noun modification, *wayeḍ* (and variants) can be freely substituted by *yaḍen* in Hmed/Bunsar and *nnaḍen* in Zerqet. In Mezduy, *wayeḍ* functions only as a head, and *nnaḍen* only as a modifier.

The following table provides examples in context of noun modification:

	Form	**Variety**	**Translation**
MS	argaz wayeḍ	K/T/S	(an)other man
	aryaz wayeḍ ~ aryaz yaḍen	H/B	
	aryaz wayeḍ ~ aryaz nnaḍen	Z	
FS	(ṯ)amġarṯ ṯayeḍ	K/S	(an)other woman
	ṯameṭṭuṯ ṯayeḍ	T	
	(ṯ)amġarṯ ṯayeḍ ~ ṯamġarṯ yaḍen	H/B	
	(ṯ)amġarṯ ṯayeḍ ~ ṯamġarṯ nnaḍen	Z	
MP	irgazen wiyyeḍ	K/T/S	'other men'
	iryazen wiyyaḍ ~ iryazen yaḍen	H/B	
	iryazen wiyyaḍ ~ iryazen nnaḍen	Z	
FP	(ṯ)imġarin wiyyeḍ	K/S	'other women'
	ṯimeṭṭuṯen wiyyeḍ ~ ṯimeṭṭuṯen ṯiyyeḍ	T	
	ṯimġarin wiyyaḍ ~ ṯimġarin yaḍen	H/B	
	ṯimġarin ṯiyyaḍ ~ ṯimġarin nnaḍen	Z	

Below follow examples with the element 'other' as a head noun:

(1) *ufa-n* *wayeḍ* (pan-Snh.)
find:P-3P other:MS
'They found the other (M) one.'

[596] The gender is optionally distinguished in the plural in Taghzut by the elderly speakers: *wiyyeḍ* (masculine/common plural) vs. *ṯiyyeḍ* (feminine plural).
[597] Cf. Chapter 7 on adjectives.

(2) *awy* *=ay* *=d* *wiyyeḍ* (K/T)
awy *=ay* *=d* *wiyyaḍ* (H/B/Z/M)
bring:IMP:SG =1S:IO =VC other:PL
'Bring me others.'

In Hmed and Bunsar, *yaḍen* can modify *wayeḍ* (and variants) functioning as a head. In this case, both elements occur in succession, e.g.

(3) *sġ* *= ay* *=d* *wayeḍ* *yaḍen* (H/B)
buy:IMP:SG =1S:IO =VC other:MS other
'Buy me another one'.

8.5. Indefinite Pronouns

There are various indefinite pronouns. The major variants are: *ay* (most Senhaja varieties except Ketama and Taghzut), *nda* and *ši* (Ketama), *ṭa* and *ḫi* (Taghzut). The indefinite pronoun *a(y)* can take exophoric deictic clitics in Hmed and Bunsar, but not in Zerqet or Mezduy, where it can only take the anaphoric clitic. The pronouns *nda* (K) and *ṭa* or *ḫi* (T) do not occur with clitics, while *ši* (K) can take clitics.

	K	**T**	**H**	**B**	**Z/M**
bare	nda; ši	ṭa; ḫi	a(y)	a(y)	a(y)
PROX	ši=yaḍ		ay=da	ay=dda	---
MED	---		ay=dina	ay=ddina	---
DIST	ši=yaḍin		ay=din	ay=ddin	---
ANP	=DIST		ay=na	ay=nna	a(y)=nna

In Hmed, the deictic clitics following *ay* lose gemination, e.g. PROX *dda* > *da*, ANP *nna* > *na*. When following prepositions, *ay* marks the state in Hmed (EL *ay*, EA *way*). In Bunsar, Zerqet, and Mezduy, *ay* remains unchanged following prepositions.[598]

For vague reference, Zerqet and Mezduy employ an invariable element *inaṭ* ('that thing', 'thingummy'). It can take deictic clitics and can follow a preposition without a change in form.

Stem	**PROX**	**MED**	**DIST**	**ANP**	**Var.**
inaṭ	inaṭ=yya	inaṭ=ina	inaṭ=yyen	inaṭ=enna	Z/M

[598] In combination with prepositions, there exists an alternative construction, based either on the borrowed element *mmen* (Hmed) or the Berber *mi* (Bunsar, Zerqet, Mezduy) (see Section 9.5).

Below follow examples of indefinite pronouns without deictics:

(4)	*kk*	*=ay*	*=d*	*ndaˆ*	*(a)yṯ=*	*i-ḫeṣṣ-an*	(K)
	kk	*=ay*	*=d*	*ṭaˆ*	*(a)yḏ=*	*i-ḫeṣṣ-an*	(T) ~
	kk	*=ay*	*=d*	*ḫiˆ*	*(a)yḏ=*	*i-ḫeṣṣ-an*	(T)
	kk	*=ay*	*=d*	*aˆ*	*(a)y=*	*i-ḫeṣṣ-en*	(H/B)
	kk	*=ay*	*=d*	*aˆ*	*(a)yḏ=*	*i-ḫeṣṣ-en*	(Z)
	give:IMP:SG	=1S:IO	=VC	NDF	1S:IO=	RF-need:P-RF	

'Give me what I want/need.'

8.6. Borrowed Arabic Pronouns

Arabic independent pronouns are used in specific contexts in Senhaja. There is a grammaticalization (and specialization) of independent pronouns in some types of presentatives and in referentials. Arabic pronominal suffixes occur in combination with some borrowed Arabic prepositions and other elements. They cannot be suffixed to words of Berber origin, except for the *š-aˆtaft*-construction (cf. Section 5.4.2.2). On the other hand, some elements of Arabic origin can take both Arabic and Berber suffixes. There is also dialectal variation. In Eastern Senhaja (Zerqet), the use of Arabic pronominal suffixes is limited to borrowed fixed expressions.

8.6.1. Arabic Independent Pronouns

In Ketama, Taghzut, and Hmed, Arabic third person independent pronouns (in full or abbreviated forms) can occur following the presentative *ha* 'here'.[599] Berber (personal or demonstrative) pronouns can also be used following *ha*.[600] In the following example, *ha* is followed by a native Berber independent pronoun in (*a*), and by a borrowed Arabic independent pronoun in (*b*):

(5) (a) *ha* *netta* (K)
(b) *ha* *huwwa* (K)
here he
'Here he is.'

[599] The element *ha* is used to present something (cf. Lafkioui 2011a: 46), but can also be used to alert. It is invariable for gender and number.

[600] The same situation is found in Ghomara (Mourigh 2015: 227, 292). Unlike in Seghrushen (Kossmannn 2017b), the presentative *ha* does not take Berber clitic pronouns in Senhaja.

Arabic pronouns in presentatives have not been found in Eastern Senhaja (Bunsar, Zerqet, Mezduy). The shortest abbreviated forms (e.g. *ha-w* 'Here he is') have not been found in Hmed. Additionally, in Ketama, there are special forms for distal presentatives, that are not used in Taghzut and Hmed. With non-third person pronouns, only Berber pronouns are used.

Presentatives with Arabic pronouns

	Proximal			**Distal**
	K/T/H	**K/T/H**	**K/T**	**K**
3MS	ha huwwa	ha hu	ha-w	ha-w-aḏaḵ ~ ha-w-aḵ
3FS	ha hiyya	ha hi	ha-y	ha-y-aḏaḵ ~ ha-y-aḵ
3P	ha huma	ha hum	ha-m	ha-m-aḏaḵ ~ ha-m-aḵ

The forms *hu, hi, hum* are truncated independent pronouns. The distal presentatives in Ketama are probably a blend of the proximal presentatives (*ha-w* etc.) and *haḏaḵ* (the Arabic MS distal demonstrative, here invariable for gender and number): the gender is expressed in this case only in the abbreviated form of the independent pronoun (MS *w* < *huwwa*, FS *y* < *hiyya*, PL *m* < *huma*). Some examples follow:

(6) *ha-w* *lbir* (K/T/H)
here-he well
'Here is a well.'

(7) *ha-w* *mažži* (K)
here-he coming:MS
'Here he is coming.'

(8) *ha* *hi* *Ḥdiža* (K/T/H)
here she Khadija
'Here is Khadija.'

(9) *ha-y* *beṛṛa* (K/T/H)
here-she outside
'(Here) she is outside.'

As discussed in Section 5.5, *ha* also appears in combination with the Berber pseudo-verb *(a)qa*.

8.6.2. Arabic Pronominal Suffixes

8.6.2.1. Overview of Forms

Arabic pronominal suffixes are found in Senhaja in combination with some Arabic borrowed elements (see below).[601] The following table lists Arabic pronominal suffixes.

Arabic pronominal suffixes

	Singular		**Plural**
1S	-i, -ni, -ya	**1P**	-na
2S	-k̲	**2P**	-k̲um/kum[602]
3MS	-h, -u	**3P**	-hum, hem, em
3FS	-ha, -a		

In some cases (following certain elements and depending on the variety), the Arabic pronouns can be freely substituted by the Berber pronominal suffixes. Different from Berber pronominal suffixes, the Arabic paradigm distinguishes gender in the third person singular (3MS *-u* vs. 3FS *-ha*), while it does not distinguish gender in the second person singular (2S *k̲*). In the 2S pronoun, there is a minor difference between the form following a consonant (*-ek̲*) and a vowel (*-k̲*). The Arabic and Berber pronominal suffixes coincide in some cases, e.g. in the 1S (*-i*). They also partly coincide in the second person: Arabic 2S (common gender) and the Berber 2MS *-k̲*. For the 1P, Arabic *-na* is distinct from the Berber *-naġ* in the majority of Senhaja (cf. *neġ* in parts of Taghzut, Seddat, and Mezduy), but is homophonous with the Ketama Berber 1S *-na*. The following table compares the forms.

Berber and Arabic pronominal suffixes

	Berber	**Arabic**		**Berber**	**Arabic**
1S	-i	-i, -ni, -ya	**1P**	-naġ, -neġ, -na	-na
2MS	-k̲	-k̲	**2P**	-wen, -un	k̲um/kum
2FS	-m	**=2MS**	**2P**		
3MS	-s	-h, -u	**3P**	-sen	-hum, hem, em
3FS	**=3MS**	-ha, -a			

[601] Cf. Mourigh 2015: 236 for Ghomara. Different from Ghomara, Senhaja does not use Arabic suffixes with Arabic borrowed verbs.

[602] In the 2P *k̲um/kum*, *k̲* and *k* are in free variation here, as elsewhere.

8.6.2.2. Elements that Take Arabic Pronominal Suffixes

The following elements have been found in combination with Arabic pronominal suffixes at least in some parts of Senhaja:

Form	Translation	Varieties and Notes
bi-	'with' (inst.)	pan-Snh, in fixed expressions
men ġir-	'except'	K/T/H (in T/H also with Berber sfx)
bwaḥḏ-	'alone'	K (also with Berber sfx)
fḥal-	'(one's) way/home'	K-Talghunt (also with Berber sfx.)
ɛend-	'look out!'	K/T; H/Z with Arabic or Berber sfx.
b nisba li-	as for	H
baɛḏ(iyat)-	'each other'	K/T/H
binaṯ-	'between; each other'	pan-Snh. (in Z also Berber 2P/3P sfx)
b ras-	'by oneself'	K/H
(b) nefs-	'(by) oneself'	H
b yedd-, bidat-	'by oneself'	K/T/H (H also with Berber sfx)
ṛa-	present	H
ḥsab(l)	seem to	K (also with Berber sfx; IO clitics in Z)
š-aˆtaft-, ṭaft-	future, habitual	H (also with Berber 2FS sfx *-em*)
ɛemmeṛ	'never'	K/T; H Arabic or Berber sfx, or frozen
mul	'owner'	pan-Snh. Cf. FS *mulaṯ*, PL *mwali*

The elements *baɛḏ(iyaṯ-)* and *binaṯ-* can be used in reciprocals. The constructions *b ras-, b nefs, b yedd-/bidat-* express 'by oneself'. On the presentative/present relevance *ṛa-*, cf. Section 5.4.4. On *ḥsab(l)*, cf. Section 3.4.4 on impersonal verbs. The construction *š-aˆtaft-* is of Berber origin (based on the verb *af* 'to find'), but takes Arabic pronominal suffixes. The last two words can occur with and without the suffixed pronouns. Various fixed expressions are discussed in Section 8.6.2.3.

1) *bi-*

In Arabic, *bi-* is the instrumental preposition 'with'. In Senhaja, there is a native Berber equivalent *s* (cf. Section 9.2.1). The Arabic *bi-* followed by Arabic pronominal suffixes is only found in a number of collocations:

- *bla bi-* 'without' (Ketama/Taghzut/Hmed), e.g. *bla bi-ya* 'without me';[603]

[603] In these same varieties, a variant with *bla* ('without') followed by the Berber Ablative preposition also occurs. This construction takes native Berber pronominal suffixes.

- numeral + *bi-* (Ketama), e.g. *ḫemsa bi-na* ‘(with the) five of us’, that combines only with the plural forms of pronominal suffixes;[604]
- *mreḥba bi-* (< *merḥaba bi-)* ‘welcome (to)’ (pan-Senhaja).

2) *men ġir-* ‘except, without’

Arabic suffixes with *men ġir-* are found in Ketama, Taghzut, and Hmed. In Taghzut and Hmed, the same element can also be followed by Berber suffixes (which is the only variant in Zerqet and Mezduy). In Ketama, from this paradigm with the native suffixes, only the form with the 3S suffix (*men ġir-es* ‘except him/her’) has been found. In combination with the 1P pronominal suffix, only the Arabic *-na* is found across Senhaja (including Zerqet and Mezduy), while the Berber *-naġ/neġ* is considered ungrammatical. The same feature is found with the elements *ɛemmeṛ* ‘never’ and *fḥal-* ‘(one’s) home/way’ discussed below. There exists an alternative construction to *men ġir-* across Senhaja: *illa* ‘except’ followed by an independent Berber pronoun, e.g. *men ġir-i* ~ *illa nek(ki)* ‘except for me’ (pan-Senhaja).

3) *bwaḥḏ/ḇuḥḏ-* ‘alone’

The element *bwaḥḏ-* ‘alone’ is originally *b-* ‘with’ (instrumental) + *waḥed* ‘one’. In Ketama, this element can take Arabic pronominal suffixes. In the rest of Senhaja, we find *weḥ(ḥ)ḏ-* (Taghzut *ḇeḥḏ-*) followed by the Berber suffixes. This word also accepts Berber pronominal suffixes in Ketama. There are dialectal preferences: the Berber suffixes are more used in Beni Aisi and Beni Hmed than in Talghunt, Lmekhzen, or Sahel (which are generally more Arabized). When combined with the Arabic pronominal suffixes, there are further dialectal differences within Ketama: in most dialects, the word *bwaḥḏ-* is followed directly by the singular pronominal suffixes. In Sahel, alongside the common forms, there are also variants with the additional *-iṯ* before the pronominal suffix.[605] With plural pronominal suffixes, the inserted *iṯ* is found more generally (in all Ketama dialects), alongside variants with *i* or with no inserted element (especially in Sahel). The varieties of Taghzut and Hmed employ Berber suffixes with this word (Taghzut *ḇeḥḏ-*, Hmed *weḥḏ-*), and also insert extra vowels before the plural pronominal suffixes: Taghzut an extra *i*, and Hmed an extra *a*. Zerqet and Mezduy use *weḥḥeḏ-* without an extra element.[606] The comparative paradigms with both Arabic and Berber pronominal suffixes follow.

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[604] Cf. T/H/Z *s ḫemsa iyyes-naġ~is-naġ* ‘(with the) five of us’, see Section 10.4.

[605] The element *iṯ* is also found in Sahel with the Berber pronouns, e.g. *bwaḥḏ-iṯ-em* (alongside *bwaḥḏ-em*) ‘you (FS) alone’.

[606] Cf. https://academia.li/gutova/senhaja-alone for the complete paradigms.

	Arabic pron. suffixes		Berber pron. suffixes			
	Ketama	**Ketama (Sahel)**	**Ketama**	**Taghzut**	**Hmed**	**Zerqet/ Mezduy**
			bwaḥḏ-i			
1S	bwaḥḏ-i	bwaḥḏ (-iṯ)-i	bwaḥḏ-eḵ	ḇeḥḏ-i	weḥḏ-i	weḥḥḏ-i
2MS	bwaḥḏ-eḵ	bwaḥḏ (-iṯ)-eḵ	bwaḥḏ-em	ḇeḥḏ-eḵ	weḥḏ-eḵ	weḥḥḏ-eḵ
2FS	=2MS	=2MS	bwaḥḏ-es	ḇeḥḏ-em	weḥḏ-em	weḥḥḏ-em
3MS	bwaḥḏ-u	bwaḥḏ (-iṯ)-u	=3MS	ḇeḥḏ-es	weḥḏ-es	weḥḥḏ-es
3FS	bwaḥḏ-(h)a	bwaḥḏ (-iṯ)-(h)a	bwaḥḏ-i-na		=3MS	=3MS
1P	bwaḥḏ -i(ṯ)-na	bwaḥḏ (-iṯ)-na	bwaḥḏ-i-wen	ḇeḥḏ-i-neġ	weḥḏ-a-naġ	weḥḥeḏ-naġ (Z)/-neġ (M)
2P	bwaḥḏ- i(ṯ)-kum	bwaḥḏ (-iṯ)-kum	bwaḥḏ-i-sen	ḇeḥḏ-i-wen	weḥḏ-a-wen	weḥḥeḏ-wen
3P	bwaḥḏ- i(ṯ-)hum	bwaḥḏ (-iṯ)-hum		ḇeḥḏ-i-sen	weḥḏ-a-sen	weḥḥeḏ-sen

4) *fḥal-* ‘one’s way/home’

The element *fḥal* (K-Talghunt, cf. K *bḥal,* H *ḇḥal,* T *ḥḥal,* M *bḥar*) originally consists of the preposition *f-* ‘in’ (locative) + *ḥal* ‘situation’. In Ketama (esp. in the Talghunt dialect), it can take both Arabic and Berber pronominal suffixes. In the rest of Senhaja, it takes only Berber pronominal suffixes. However, the Berber 1P suffix *naġ* is not used, and the Arabic *-na* is used instead.

5) *ɛend-* ‘look out!’

In Senhaja, the use of the Arabic element *ɛend-* (‘at’ and other meanings) is limited to warnings. In Ketama and Taghzut, *ɛend-* obligatorily takes Arabic pronominal suffixes. In Hmed and Zerqet, both Arabic and Berber pronouns are possible.[607] With the 2P suffix, there is an optional extra element *a* in most varieties (K/T/H). The Arabic 2P suffix is not used in Zerqet with this word.

[607] As discussed in Section 5.3.4, in Zerqet, there exists a Berber equivalent based on the pseudo-verb *ġar-* (distinct from the preposition *ġur-* ‘at’).

	Ketama	Taghzut	Hmed		Zerqet	
	Ar. sfx	**Ar. sfx**	**Ar. sfx**	**Berber sfx**	**Ar. sfx**	**Berber sfx**
2(M)S	ɛend-ek̲	ɛend-ek̲	ɛend-ek̲	ɛend-ek̲	ɛend-ek̲	ɛend-ek̲
2FS	=2MS	=2MS	=2MS	ɛend-em	=2MS	ɛend-em
2P	ɛend-(a)k̲um	ɛend-ak̲um	ɛend-(a)k̲um	ɛend-(a)wen	---	ɛend-wen

6) *b nisba li-* 'as far as'

The expression *b nisba li-* 'as for' takes Arabic pronominal suffixes in Hmed variety. An alternative construction (and the only one found in the rest of Senhaja) consists of *b nisba* + the Dative *i* 'for' followed by Berber independent pronouns, e.g. *b nisba l-i* ~ *b nisba li-ya* (with an Arabic suffix), and *b nisba i nekki* (H/pan-Snh.) 'as for me'.

7) *baɛḍ(iyaṯ)-* 'each other' and *binaṯ-* 'between; each other'

The borrowed *baɛḍ(iyaṯ)-* 'each other' found in Ketama, Taghzut, and Hmed, takes Arabic (plural) pronominal suffixes and is used in reciprocals.[608] The preposition *binaṯ-* is found across Senhaja. Besides its literal meaning 'between', it can be also used to express reciprocity at least in parts of Senhaja. This preposition normally takes Arabic (plural) pronominal suffixes. In Zerqet, Berber pronominal suffixes are also possible in 2P and 3P (but not in 1P).

8) *b ras-* 'by oneself', *(b) nefs-* '(by) oneself'

The Arabic construction *b ras-* (literally 'with one's head', the equivalent of the Berber construction *s uzellif n-* 'with one's head') is found in Ketama and Hmed. It takes Arabic pronominal suffixes that cannot be substituted by the Berber ones.

The noun *nnefs* has different meanings including 'self' and can be followed by the Berber Genitive phrase with *n-*. In Hmed, alongside *nnefs*, there is the form *nefs-* (without the Arabic article) that takes Arabic pronominal suffixes, e.g. *nefs-u* 'himself'. The construction *b nefs-* with the Arabic instrumental preposition expresses 'by oneself' (synonymous of *b ras-*).

[608] Cf. Ghomara *baeṭiyaṯ-/baeṭ-* and, rarely, *baeḍ-*, similarly followed by the Arabic suffixes (Mourigh 2015: 239). The constructions based on *bɛaḍ*~ *bɛaṯ* are also found in Mzab, Nefusa, and Awjila (Kossmann 2013a: 297).

9) *b yedd- ~ bidat-* 'by oneself'

The construction *b yedd-* (literally 'with hand') borrowed from Arabic is found in Ketama, Taghzut, and Hmed. It is the Arabic equivalent of the Berber *s ufus n-* 'with ones' hand'. It normally takes Arabic pronominal suffixes, although Berber suffix pronouns are also possible in Hmed with 2FS, 2P, and 3P pronouns. There is also a free variant *bidat-* (K)*/bidaṭ-* (T/H). This variant likewise normally takes Arabic suffixes, while Berber suffixes are accepted in Hmed with 2FS, 3S, 2P, and 3P.

10) *ṛa-* (present relevance)

On the element *ṛa-* (present relevance, locative), cf. Section 5.4.4. In Hmed, the element *ṛa-* takes Arabic suffixes, but there are some peculiarities. In the second person, alongside the common gender *ṛa-k/ṛa-ḵ* (as in Arabic), the specifically feminine *ṛa-kem/ṛa-ḵem* is also used. In 1P, alongside *ṛa-na*, there is also *ṛa-naġ*.

11) *ḥsab(l)-* 'to seem to'

On *ḥsab(l-)* (and Zerqet *sḥab(l-)*) as an impersonal verb that can take Berber IO pronominal clitics in most varieties, cf. Section 3.4.4. In Ketama, *ḥsab(l)* either takes the Arabic pronominal suffixes, or the Berber pronominal suffixes (as found following prepositions). The Arabic Dative preposition *l* can (optionally) be used. For the 2FS, rather than using the Arabic form *ḥsab(-l)-eḵ* (=2MS), the specifically feminine Berber *ḥsab(-l)-em* is preferred. The following table compares the forms with Arabic and Berber suffixes found in Ketama.

	Singular			**Plural**	
	+Arabic sfx.	**+Berber sfx.**		**+Arabic sfx.**	**+Berber sfx.**
1S	ḥsab(-l)-i	ḥsab(-l)-i	**1P**	ḥsab(-l(i))-na	ḥsab(-l)-na
2MS	ḥsab(-l)-eḵ	ḥsab(-l)-ek	**2P**	ḥsab(-l(i))-ḵum	ḥsab(-l)-un
2FS	(ḥsab(-l)-eḵ)	ḥsab(-l)-em			
3MS	ḥsab(-l)-u	ḥsab(-l)-es	**3P**	ḥsab(-l((i))-hum	ḥsab(-l)-sen
3FS	ḥsab(-l(i))-ha	ḥsab(-l)-es			

12) *š-aˆtaft* (future) and *ṭaft-* (habitual)

The construction *š-aˆtaft* used as a future marker has been discussed in Section 5.4.2.2. Cf. Section 5.4.3 on *ṭaft-* as a marker of the habitual/progressive. As has been mentioned previously, these constructions are grammaticalizations based on the Berber verb *af* 'to find'. It is the only case we are aware of where a native Berber verb (albeit grammaticalized) takes Arabic pronominal forms. For the second person, the Arabic suffix *-ḵ* can be used both for the masculine and feminine, but there are also specifically feminine forms *š-a taft-em* (future) and *ṭaft-em* (habitual) with a Berber 2FS pronominal suffix. No other Berber pronominal suffixes are accepted in these constructions. The verb *af* 'to find' is also used in other Senhaja varieties, but it has not been grammaticalized in other varieties to such an extent. In Hmed, outside these constructions, the verb *af* takes the usual Berber PNG subject markers (e.g. *š-aˆt-af-eḏ* 'you (sg.) will find', *ṭaf-eḏ* 'you (sg.) find') and pronominal clitics. The clitics are fronted in the Aorist following the future marker *š-a*. In Hmed, all these constructions (future *š-aˆtaft-* and *š-aˆt-af-eḏ*, imperfective *ṭaft-* and *ṭaf-eḏ*) can be combined with the second person pronouns. This is impossible for *š-aˆt-af-eḏ* in Zerqet, for example, where the verb has not been grammaticalized as in Hmed. The following table lists the Hmed forms with a reference to the future (*taft*) and present/habitual (*ṭaf*). In *ṭaf-eḏ* 'you find', the final *-ḏ* (2S subject suffix) can be freely omitted before the verbal clitics: *ṭaf-eḏ* > *ṭaf*. Cf. Section 5.4.3 for some examples.

	Future		**Imperfective/Habitual**	
	***š-aˆtaft-* + Ar. pronouns**	***š-aˆt-af-eḏ* + Berber DO clitics**	***ṭaft-* + Ar. pronouns**	***ṭaf-eḏ* + Berber DO clitics**
1S	š-aˆtaft-ni	š-a y = ṯ-af-eḏ	ṭaft-ni	ṭaf(-ḏ) = ay
2MS	š-aˆtaft-eḵ	š-a k = ṯ-af-eḏ	ṭaft-eḵ	ṭaf(-ḏ) = aḵ
2FS	š-aˆtaft-eḵ[609]	š-a kem = ṯ-af-eḏ	ṭaft-eḵ[610]	ṭaf(-ḏ) = akem
3MS	š-aˆtaft-u	š-a t = t-af-eḏ	ṭaft-u	ṭaf(-ḏ) = iṯ, ṭafˆt
3FS	š-aˆtaft-ha	š-a ṯ = ṯ-af-eḏ	ṭaft-ha	ṭaf(-ḏ) = iṯ, ṭaf = ṯ
1P	š-aˆtaft-na	š-a ġen = ṯ-af-eḏ	ṭaft-na	ṭaf(-ḏ) = anaġ
2P	š-aˆtaft-ḵum	š-a kʷen = ṯ-af-eḏ	ṭaft-ḵum	ṭaf(-ḏ) = akʷen
3P	š-aˆtaft-hum	š-a hen = ṯ-af-eḏ	ṭaft-hum	ṭaf-tˆten

[609] Also: *š-aˆtaft-em*, with the Berber 2FS suffix pronoun.

[610] Also: *ṭaft-em*.

13) *ɛemmeṛ* 'never'

The element *ɛemmeṛ* has the sense 'never (in one's life)'. Compare the noun *lɛmeṛ* (without gemination) 'life, lifespan'. In Ketama and Taghzut, *ɛemmeṛ* takes Arabic pronominal suffixes. In 1S, the suffix *-i* is used alongside *-ni*: *ɛemmṛ-i*~ *ɛemmeṛ-ni* '(never) in my life'. The suffix *-ni* has only been found with this word.[611]

In Hmed, both Arabic and Berber pronominal suffixes can be used with this word, with the exception of 1P, where only the Arabic *-na* is found. In Seddat and Zerqet, *ɛemmeṛ* remains unchanged in all persons, and occurs in free variation with *ɛemmeṛs* (cf. Mezduy invariable *ɛemmaṛs*). The latter is an amalgam of *ɛemmeṛ* (Mezduy *ɛemmaṛ*) and the (frozen) Berber 3S pronominal suffix. In Hmed, the frozen *ɛem(m)ṛes* (with a different syllabification) has also been found, while the variant with an invariable *ɛemmeṛ* is rare.

14) *mul* 'owner'

The noun *mul* (FS *mulaṯ*, PL *mwalin*) 'owner, lord' can appear without pronominal suffixes. It is used in *mul* + NOUN 'the owner of X' constructions (cf. Section 6.5.5). This word can take Arabic third person pronominal suffixes (across Senhaja). With the plural form of the noun (*mwali*), the construction with the Genitive preposition *n-* followed by the Berber pronominal suffixes is also accepted in Taghzut and Hmed (e.g. *mwali nn-es* 'his/her owners').

	MS *mul* 'owner'	**FS *mulaṯ* 'f. owner'**	**PL *mwali* 'owners'**	**Translation**
3MS	mul-ah	mulaṯ-u	mwali-h	his owner(s)
3FS	mul-aha	mulaṯ-ha	mwali-ha	her owner(s)
3P	mul-ahum	mulaṯ-hum	mwali-hum	their owner(s)

8.6.2.3. Fixed Expressions

There are also some other fixed expressions with Arabic pronominal suffixes. It is mostly in fixed expressions that Arabic pronouns are found in Eastern Senhaja (Zerqet, Mezduy), and even in some of these expressions, Berber pronominal suffixes also occur. The expression *mreḥba bi-* 'welcome' was discussed above. The following examples also contain Arabic pronouns:

[611] In Arabic, the 1S *-ni* usually follows the verbal forms, vs. 1S *-i* that follows nominal forms. In Arabic, both *ɛemmṛ-i* and *ɛemmeṛ-ni* are used.

(10) *maši suq-u* (pan-Snh.)[612]
NEG business-3S
'It is not his business.'

(11) *maši šeġl-u* (pan-Snh.)[613]
NEG work-3S
'It is not his business.'

(12) *ɛum* *beḥr-eḵ* (pan-Snh.)
swim:IMP(:SG) sea-2MS
lit. 'Swim your (own) sea!' (meaning: Solve your own problem(s)!)

Compare the plural form (depending on the variety, the form of the verb can be frozen, or accept Arabic or Berber imperative plural suffix):

(13) (a) *ɛum-u* *bḥer-ḵum* (K)
swim-IMP:PL sea-2P

(b) *ɛum-u* *bḥer-ḵum* ~ *ɛum-eṯ* *bḥer-wen* (H)
swim-IMP:PL sea-2MP ~ swim-IMP:PL sea-2MP

(c) *ɛum* *bḥer-ḵum (~ ɛum bḥer-wen)* (Z)
swim:IMP(:SG) sea-2MP
'Solve your own problems!' (IMP:PL)

The following expression (synonymous of the above) also contains an Arabic suffix pronoun:

(14) *debber* *ras-eḵ* (K/T/S/H)
tebber *ras-eḵ* (Z)
provide:IMP:SG head-2S
'Provide for yourself', 'Solve your own problems!'

In Seddat, Hmed, and Zerqet, a variant with a Berber 2FS pronominal suffix *-em* is also used. The suffix is immediately attached to *ras-*:

(15) *debber* *ras-em* (S/H)
tebber *ras-em* (Z)
provide:IMP:SG head-2FS
'Provide for yourself', 'Solve your own problems!'

---

[612] The variant *maši ssuq nn-es* with the Genitive construction *n-* is also used in Hmed.

[613] The variant *maši šš̈ġul* (Ketama *šš̈ġuy*, Mezduy *šš̈ġur*) *nn-es* also occurs. In Mezduy, this expression contains the predicative particle *ḏ*: *maši ḏ šš̈ġur nn-es*.

In Ketama and Taghzut, the above construction is not used. Instead, the entire expression is in Arabic, and the verb takes the Arabic Imperative FS form with the suffix *-i*:

(16) *debbr-i* *ras-ek* (K/T)
provide:IMP.FS head-2S
'Provide for yourself', 'Solve your own problems!'

In the second person plural, in Ketama and Taghzut, only the Arabic suffix *-ḵum* is found, while in Seddat, Hmed, and Zerqet, both the Arabic suffix *-ḵum* and the Berber suffix *-wen* are used:[614]

(17) *debbr-u* *ras-ḵum* (K/T/S)
provide-IMP:PL head-2P
(18) *debber* *ras-ḵum* (T/S/H) [< Ar.]
debber *ras-wen* (S/H) [< Berber]
tebber *ras-ḵum* (Z) [< Ar.]
tebber *ras-wen* (Z) [< Berber]
provide:IMP:SG head-2P
'Provide for yourselves', 'Solve your own problems!'

8.7. Conclusions

There are native Berber and borrowed Arabic pronouns in Senhaja. The major types of Berber pronouns are the independent (free) pronouns and bound pronouns. Bound pronouns include clitic pronouns (part of the verb complex) and pronominal suffixes.

1. Berber pronouns

Independent personal pronouns in Senhaja express person, number, and gender. The gender is distinguished in the 2S and 3S across Senhaja, and in 2P and 3P only in Eastern Senhaja (Zerqet/Mezduy). Some pronouns have different forms which are either in free variation or reflect dialectal preferences. Some pronouns have a short and a long form. Varieties differ in spirantization of *k (>ḵ)* (2S, 2P), *ṯ > h* (3FS), *t > ṯ* (Hmed, Taghzut in 3MS, 3FS), vowel *u* vs. *e* (1P, 2P).

[614] Concerning the verb form, in Ketama, the Arabic imperative plural form with the suffix *-u* is used. In Hmed and Zerqet, the form of the verb remains unchanged. In Taghzut and Seddat, both forms of the verb are possible.

Pronominal suffixes are pronouns suffixed to a limited set of kinship nouns and to prepositions. Some kinship terms (belonging to class III, non-affix nouns) accept pronominal suffixes to express possession, while regular nouns use the Genitive construction with *n* 'of'. In the absence of any suffix, the 1S reference is understood, e.g. *gma* 'my brother' > *gma-s* 'his/her brother' (suffix *-s*). In singular suffixes, there is no variation in Senhaja: 2MS *k*, 2FS *m*, 3S *s*. Variations is found in the plural forms. In Mezduy, with plural forms of suffixes, *t* is inserted between the kinship term and the suffix (as in Tarifiyt). The distinct 2FP and 3FP forms are rare even in Eastern Senhaja. In Ketama and Taghzut, plural pronominal suffixes are not used in some dialects.

Pronouns can be suffixed to prepositions. The forms are largely the same as pronominal suffixes with kinship nouns, with some differences:

- there is a difference in 1S: no suffix with kinship nouns, *-i* with prepositions;
- Mezduy does not insert *t* between the preposition and the plural suffixes;
- Ketama and Taghzut accept plural suffixes with prepositions.

The Genitive preposition *n-* followed by the pronominal suffixes expresses possession. The preposition has the form *n-* when followed by a consonant, and *nn-* when followed by a vowel, including schwa. The 1S form *inu* is irregular.

When a Noun Phrase is constituted by a pronominal form followed by a determination, such as a relative or a possessive phrase, special pronominal forms can be used, called *pronominal heads*. Bare pronominal heads can function as heads of relative phrases in Ketama, Taghzut, and Zerqet. In Ketama, the masculine singular and the (common) plural forms are identical. In Zerqet, the masculine singular and the masculine plural forms are identical, while the feminine plural is distinct. Only Taghzut allows for a distinct plural marking (optional with relative forms of the verb).

Most demonstrative pronouns can be analyzed as pronominal heads with deictic clitics. There is a three-way distinction in exophoric deixis (proximal, medial, and distal) in most varieties, with the additional anaphoric demonstratives. Ketama and Taghzut employ the distal demonstrative as anaphoric. Most varieties distinguish masculine singular, feminine singular, and common plural forms. Some varieties (Zerqet, Mezduy, Seddat, and optionally, Bunsar) distinguish a separate FP form. In postnominal deictics, only Ketama and Taghzut mark the number. In bare pronominal heads, only Taghzut marks the number. In demonstratives, the number is marked in all varieties.

The words for ‘other’ are also based on pronominal heads. As in demonstratives, the number is marked across Senhaja. Except Mezduy, the same forms can be used on their own (as head nouns) or follow a noun. Central and Eastern Senhaja (H/B/Z/M) also have a different word for ‘other’, invariable for gender and number, that only functions as a modifier: *yaḍen* (H/B) and *nnaḍen* (Z/M).

The major variants of indefinite pronouns are: *ay* (most varieties), *nda; ši* (Ketama), *ṭa* and *ḫi* (Taghzut). The indefinite pronoun *a(y)* can take exophoric deictic clitics in Hmed and Bunsar, but not in Zerqet or Mezduy, where it can only take the anaphoric clitic. The pronouns *nda* (K) and *ṭa* or *ḫi* (T) do not occur with clitics, but *ši* (K) does.

2. Borrowed Arabic Pronouns

Arabic third person independent pronouns, full or abbreviated, are found in Western Senhaja (K/T/H) in specific contexts, such as presentatives, following the presentative *ha* ‘here’. With non-third person pronouns, only Berber pronouns are used.
Arabic pronominal suffixes are found across Senhaja with some borrowed Arabic elements. They normally cannot be suffixed to words of Berber origin (with one exception). Different from Berber suffixes, the Arabic paradigm distinguishes gender in the third person singular (3MS *-u* vs. 3FS *-ha*), while it does not distinguish gender in the second person singular (2S *(e)ḵ*). The Arabic and Berber suffixes coincide in 1S (*-i*), and in 1P in Ketama (*-na*). They also partly coincide in the second person: Arabic 2S/Berber 2MS *-ḵ*. Depending on the lexeme and the variety, the Arabic suffixes can be in free variation with the Berber suffixes (in all persons or in specific persons). With some elements (e.g. *men ġir-* ‘except’, *ɛemmeṛ* ‘never’, and *fḥal-* ‘(one’s) home/way’), the Arabic 1P forms are preferred above the Berber forms even in those varieties that employ Berber suffixes with these elements (Z/M). Usually, in Eastern Senhaja, the use of Arabic suffixes is limited to borrowed fixed expressions, such as *mreḥba bi-* ‘welcome’.

The constructions *š-aˆtaft-* and *ṭaf-* used in Hmed as markers of future and habitual, respectively, are Berber in origin, but accept Arabic suffixes. They are grammaticalizations of the Berber verb *af* ‘to find’. In other Senhaja varieties, the verb *af* has not been grammaticalized, and does not accept Arabic suffixes.

9. Prepositions

9.1. Introduction

Prepositions serve to indicate the function of a noun or a pronoun that follow them in relation to the predicate. In Senhaja, prepositions can be simple or complex (including combined).[615] Simple prepositions consist of a single element and can be divided further into groups according to the state of the noun that follows (Section 9.2). Many simple prepositions have two allomorphs, one (usually the shorter one) used before nouns and the other one (usually longer) used with pronominal suffixes.[616] The two forms are not always clearly related. Some prepositions do not take pronominal suffixes, but instead are followed by independent pronouns. Nouns following most prepositions are in the EA (Annexed State, cf. Section 6.1.1.3), while some prepositions take nouns in EL (optionally or obligatorily).

Complex prepositions follow the Genitive *n* (Section 9.3.1). Some prepositions are optionally complex, because the Genitive *n* is not obligatory. Those of them that take EL when *n* is absent, are discussed in Section 9.2.3. Some prepositions can be combined (Section 9.3.2). Section 9.4 discusses some frequent (more or less fixed) locative expressions. They are based on nouns that can be considered grammaticalized to different degrees.

Prepositions can be combined with the elements *mmen*, *mi* to form prepositional interrogatives (cf. Section 9.5). Some prepositions originated from nouns and preserve nominal characteristics. A few Arabic borrowed prepositions can take Arabic pronominal suffixes (cf. Section 8.6.2), e.g. *bi-* ‘with’ (instrumental). This phenomenon is marginal in Senhaja, and examples are limited to fixed expressions borrowed from Arabic.

The prepositional predicate

Prepositional phrases can function as predicates, e.g.

[615] Historically, some prepositions are complex/combined, but can be considered as simple synchronically, if the elements they are made up from are no longer used on their own. Some prepositions optionally include a basic preposition, making them (optionally) complex. Some prepositions are simple when followed by a noun, but complex when followed by a pronominal suffix.

[616] In Senhaja, different from Tarifiyt and as in Ghomara (Mourigh 2015: 253), there are no separate prepositions in relative constructions.

(1) *netta* *g* *uḫyam* (K)
he in house:EA
'He is at home.'
(2) *netta* *iḏ-es* (K)
he with-3S
'He is with him/her.'
(3) *netta* *aštin* *n* *Muḥemmeḏ* (K)
netta *anešt* *n* *Muḥemmeḏ* (Z)
he as.big.as of Mohammed
'He is as big/old as Muhammed.'

The negation of the prepositional predicate is discussed in Section 9.7.

9.2. Simple Prepositions

Simple prepositions can be divided into three groups according to the state of the noun that follows:[617]

1) those that take nouns in EA (*Etat d'annexion*);
2) those that (dialectally) take nouns in a specific form of EA;
3) those that take nouns in EL.

The majority of prepositions takes EA (group 1, Section 9.2.1). In parts of Senhaja (Taghzut, Hmed, Zerqet), nouns following prepositions ending in *-g*^{w} take a special form of EA lacking a full vowel (Section 9.2.2). Finally, a third group of prepositions take nouns in EL (obligatorily or optionally), see Section 9.2.3. There are dialectal differences: some prepositions take nouns in EA in some varieties, but can take EL in others. Following some prepositions, the state of the noun is linked to the gender. Thus, following the Allative *za* 'to' in Hmed/Zerqet, masculine nouns of class I take EL, while feminine nouns take EA.[618] Following *ffir* 'after' in these same varieties, masculine nouns can be either in EL or EA, while feminine nouns tend to be in EL (while EA is also accepted).

[617] See Section 6.1.1.3 and Mettouchi & Frajzyngier 2013 on the theoretical issues of states in Berber. There are other ways to divide simple prepositions, e.g. those that remain unchanged whether followed by a noun or a pronoun, and those that have two forms (when followed by a noun vs. by a pronoun).
[618] Potentially, this feature could be taken as an argument to propose the existence of a third state in Senhaja. This analysis is not developed further here.

9.2.1. Prepositions that Take EA

9.2.1.1. Overview

The following table presents simple prepositions that take nouns in EA. Some details and examples follow the table.

Simple prepositions that take EA nouns

Translation	**+Noun**			**+Pronominal suffix**		
	K	**H**	**Z**	**K**	**H**	**Z**
of (Genitive)	n	n	n	n(n)-	n(n)-	n(n)-
with (Comitative)	iḏ	kiḏ	(i)k	iḏ-	kiḏ-	(i)kiḏ-
with (Instrument.)	s	s	s	sgi(g)-	iyyes(s)-	zi(yy)-
at (Fr. '*chez*')	ġu(ḏ), gu(ḏ)	ġu(r)	ġu(r)	ġur-	ġur-	ġur-
on	af	ḫ	ḫ	aḫf-	ḫf-	ḫḫ-

9.2.1.2. *n* 'of' (Genitive)

The Genitive preposition *n* is used to link two nouns (see below on assimilations). It also features as part of some complex prepositions (Section 9.3.1), optionally or obligatorily, and in locative expressions (Section 9.4). In many cases, it is used to express possession, e.g.

- *n urgaz* (K/T/S), *n uryaz* (H/Z) 'of the man';
- *n emġarṭ* (K), *n ṭemġarṭ* (H), *n temġarṭ* (Z) 'of the woman'

The preposition *n* can be optionally assimilated to the following *u-* (EA prefix of *a-* initial masculine singular nouns) across Senhaja (cf. Section 2.4.1.3), e.g.

(4) *aġrum n uḫyam ~ aġrum uḫyam* (K/Z)
aġrum n uḫam ~ aġrum uḫam (H)
bread:EL of house:EA
'the bread of the house.'

In such cases, i.e. when the preposition *n* is optionally pronounced (but is underlyingly there), we write *n* in parentheses, e.g.

(5) *aġrum* *(n)* *uḫyam* (K/Z)
bread:EL of house:EA
'the bread of the house.'

The preposition *n* can optionally be assimilated to the following *l* (across Senhaja), e.g.

- *n lebhima* ~ *lˆlebhima* (K/H/Z) 'of the donkey';
- *n lefžer* ~ *lˆlefžer* (K/H/Z) 'of the daybreak';
- *žžuž n lkelmaṯ* > *žžuž (lˆ)lkelmaṯ* (K/H/Z) 'two words'.

The preposition has the form *n*~*nn-* with pronominal suffixes. The first person singular has an irregular form:[619]

- *inu* (pan-Snh.) 'my' (of:1S);
- *nn-es* (pan-Snh.) 'his/her' (of-3S);
- *nn-un* (K), *n-wen* (T/S/H/B/Z/M) 'your (PL)' (of-2P).

9.2.1.3. *iḏ* (K)/*kiḏ* (H)/*(i)k* (Z) 'with' (Comitative)

The comitative preposition has the same form *iḏ* in Ketama and *kiḏ* in Hmed whether followed by a noun or a pronominal suffix. In Zerqet, there is a difference: *(i)k* is used before nouns, and *(i)kiḏ-* before pronouns. The preposition takes nouns in EA in all varieties, e.g.[620]

(6) (a) *i-dda* =*d* *kiḏ* *umdakk^{w}i* *nn-es* (H)
3MS-go:P =VC with friend:EA of-3S
(b) *i-wsa* =*d* *(i)k* *umddakk^{w}el* *nn-es* (Z)
3MS-come:P=VC with friend:EA of-3
'He came with his friend.'

In Ketama, the preposition *iḏ* behaves differently from Hmed/Zerqet, in that it cannot follow a verb, but must follow a (pro)noun. For the discussion of this phenomenon and the grammaticalization process behind, see Souag 2015b.[621] In the following example,

[619] On the Genitive preposition *n* in combination with pronominal suffixes, cf. Section 8.3.2.3.

[620] However, one young speaker (25 years old) from the Hmed region (Tafurnut) accepts nouns in EL following this preposition. Other speakers from the same village agreed that "different variants are possible", but have consistently used EA nouns in their own speech.

[621] Souag 2015b discusses the typology of conjunction and agreement, and demonstrates how in Songhay, probably under the influence of Berber, the conjunction (NP-AND) developed into the comitative preposition. This development reverses a better-known (claimed to be unidirectional) path COMITATIVE > NP-AND. Different Senhaja varieties, then, show different stages of this path.

the pronoun *netta* ‘he’ cannot be omitted: construction in *(a)* is ungrammatical; the grammatical construction must have a noun or a pronoun before *iḏ*, as in *(b)*:

(7) (a) **i-dda* *=d* *iḏ* *umdakkuy* *nn-es* (K)
3MS-go:P =VC and friend:EA of-3S
(b) *i-dda* *=d* *netta* *iḏ* *umdakkuy* *nn-es* (K)
3MS-go:P =VC he with friend:EA of-3S
‘He came with his friend.’ (lit. ‘He came he with his friend’)

There is a regular assimilation of the final *-ḏ* in Hmed with the following *ṯ-*: *ḏ ṯ* > *tˆt*, e.g. *kitˆtemġarṯ* ‘with a woman’. In Ketama, there is an optional assimilation when *iḏ* is followed by a feminine noun, e.g. *iḏ emġarṯ* ~ *itˆemġarṯ* ‘with a woman’.

In Hmed and Zerqet, but not in Ketama, this preposition also has the sense ‘near to’, e.g.[622]

- *kiḏ uḫam* (H), *(i)k uḫyam* (Z) ‘near the house’ (lit. ‘with the house’);
- *kitˆṭḥanuṭ* (H), *(i)k ṯḥanut* (Z) ‘near the shop’ (lit. ‘with the shop’).

Compare also the following examples in Ketama vs. Hmed/Zerqet:

(8) (a) *tlaqi-ġ* *iḏ* *Muḥemmeḏ* (H)
tlaqi-ġ *(i)k* *Muḥemmeḏ* (Z)
**tlaqi-ġ* *i* *Muḥemmeḏ* (K)
meet:P-1S with Mohammed
‘I met with Mohammed.’
(b) *tlaqi-ġ* *nekki i* *Muḥemmeḏ* (K)
meet:P-1S I and Mohammed
‘I met with Mohammed.’

The form *iḏ-* ‘with’ used with pronominal suffixes functions in Ketama as in other varieties, and can follow verbs:

(9) *i-dda* *iḏ-es* (K)
i-daa *kiḏ-es* (H)
3MS-go:P with-3S
i-ɛḏa *ikiḏ-es* (Z)
‘He went with him/her.’

[622] In this sense, it partly overlaps with the preposition *ġur/ġuḏ* ‘at’ discussed below.

Again, in Ketama, *iḏ-* used with pronominal suffixes does not have the sense ‘near to/next to’, e.g.

(10) (a) **saken* *qrib* *iḏ-es* (*K)
living:MS near with-3S
(b) *sekn-aġ* *qrib* *ḵiḏ-es* (H)
zedġ-aġ *qrib* *kiḏ-es* (Z)
live:P-1S near with-3S
‘I live next to it/him/her.’, lit. ‘I live with it/him/her.’

9.2.1.4. *s* ‘with’ (Instrumental)

The instrumental preposition has the same form (*s*) in different Senhaja varieties when followed by a noun. In Ketama, it can be homonymous with the Ablative *s~seg/zeg* ‘from’. When followed by a pronoun, different forms are used in different varieties: Ketama *sgig-(~sgiḡ~sgiyy-)*, Hmed *(i)yyess-*, Zerqet *ziyy-* (when followed by singular pronominal suffixes)*/zi-* (when followed by plural pronominal suffixes). In this case, the preposition is homonymous with the Ablative preposition ‘from’ both in Ketama and Zerqet, while in Hmed, the prepositions are distinct. Some examples follow:

- *s ufus* (pan-Snh.) ‘with the hand, by hand’;
- *s uġrum* (pan-Snh.) ‘with the bread’;
- *s elmus* (K), *s wezzay* (H), *s wezzal* (Z) ‘with the knife’.

With pronouns:

- *sgig-i (~sgiyy-i)* (K), *(i)yyess-i* (H), *ziyy-i* (Z) ‘with me’;
- *sgig-es(~sgiyy-es)* (K), *(i)yyes(s)-(ˆs)* (H), *ziyy-es* (Z) ‘with it’;
- *sgig-un* (K), *(i)yyes(s)-wen* (H), *zi-wen* (Z) ‘with you (PL)’;
- *sgig-sen* (K), *(i)yyes(s)-sen* (H), *zi-sen* (Z) ‘with them’.

(11) *uri-ḫˆ* *t* *sgig-es* (K)
uri-ġ =*ṭ* *iyyes(ˆs)* (H)
uri-ḫ =*t* *ziyy-es* (Z)
write:P-1S =3FS:DO with-3S
‘I wrote it with it.’

9.2.1.5. *ġuḏ/gu(ḏ)/ġu(r)* ‘at’

Many Berber languages have a preposition that has a meaning close to the French ‘chez’, roughly equivalent of the English ‘at’. This preposition has the form *ġu(ḏ)~gu(ḏ)* in Ketama and *ġu(r)* in Hmed and Zerqet. With pronominal suffixes, we find *ġur-*. In specific constructions, this preposition expresses possession. On the combination of the Allative *za* ‘to(wards)’ and the Ablative *zi* ‘from’ with *ġur*, see Section 9.3.2.3. Some examples follow:

(12) *ġur urgaz inu* (K)
ġur uryaz inu (H/Z)
at man:EA of:1S
‘with my husband, at my husband’s’

(13) (a) *Muḥemmeḏ ha-w ġu gma-s* (K)
Mohammed here-3MS at brother-3S
(b) *Muḥemmeḏ aq =eṯ ġur ušqiq nn-es* (Z)
Mohammed QA =3MS:DO at brother:EA of-3S
‘Mohammed is at his brother’s (place).’

(14) (a) *leflus nn-eḵ ha-m ġu Muḥemmeḏ* (K)
money of-2MS here-3P at Mohammed
(b) *leflus nn-eḵ aq =ṯen ġu Muḥemmeḏ* (Z)
money of-2MS QA =3P:DO at Mohammed
lit. ‘Your money is at Mohammed’s.’ (‘Mohammed has your money.’)

In Senhaja, this preposition is mainly used with animate nouns (humans). When used with inanimate nouns (this occurs in Ketama and Hmed), it has the sense ‘near to’, e.g.

- *ġuḏ uḫyam* (K), *ġur uḫam* (H) ‘near the house’ (lit. ‘at the house’);
- *ġu tḥanut* (K), *ġu tḥanuṯ* (H) ‘near the shop’ (lit. ‘at the shop’).

However, in Hmed, the comitative preposition ‘with’ is more frequent in this sense, and in Zerqet, it is often the only accepted variant.

The following examples illustrate the use of *ġur-* with pronominal suffixes:

(15) (a) *Muḥemmeḏ ha-w ġur-es* (K)
Mohammed here-he at-3S
(b) *Muḥemmeḏ aq=eṯ ġur-es* (Z)
Mohammed QA=3MS:DO at-3S
‘Mohammed is at his/her place.’

(16) *Muḥemmeḏ ġur-es leflus nn-eḵ* (K/H/Z)
Mohammed at-3S money of-2MS
'Mohammed has your money.'

9.2.1.6. *af~ḫ* 'on, above'

The preposition 'on, on top of' has the form *af* in Ketama, and *ḫ* in Hmed and Zerqet.[623] Before pronominal suffixes, Ketama has *aḫf-*, Hmed *ḫf-*, and Zerqet *ḫḫ-*. In Ketama, the preposition is understood as 'on', while in Hmed and Zerqet, it can have different interpretations ('on' or 'over'), depending on the context. Some examples follow:

- *af uẓru* (K), *ḫ uẓru* (H/Z) 'on the stone'
- *af ṭṭabla* (K), *ḫ ṭṭabla* (H/Z) 'on the table'

(17) *aḥemmir (ha-w) af uḫḫam* (K)
bird:EL (here-he) on house:EA
afruḫ aq=eṭ ḫ uḫyam (Z)
bird:EL QA=3MS:DO on house:EA
'The bird is on the house.' (Z also: 'The bird is above the house.')

(18) *afruḫ i-tferfar ḫ uḫyam* (Z)
bird:EL 3MS-fly:I on house:EA
'The bird flies over/above the house.'

In Ketama, the following sentence is ungrammatical:

(19) **afruḫ i-tferfar af uḫḫam* (K)
bird:EL 3MS-fly:I on house:EA
Intended: 'The bird flies over/above the house.'

Instead, the composite preposition *gesni n* is used in Ketama (cf. Section 9.3.1.1).

Examples with the pronominal suffixes:

- *aḫf-i* (K), *ḫf-i* (H), *ḫḫ-i* (Z) 'on me' (H/Z also: 'above/over me')
- *aḫef-sen* (K), *ḫef-sen* (H), *ḫḫ-sen* (Z) 'on them' (H/Z also: 'above/over them')

Other words for 'above' are discussed below.

[623] This preposition is historically related to the noun *iḫef* 'head, self'.

This preposition can also be used in the sense ‘near to/next to’, e.g.[624]

(20) (a) *(nek)* *saken* *qrib* *af* *urgaz* =*aḏ* (K)
(I) living:MS near on man:EA =PROX:SG
(b) *sek(k)n-aġ* *qrib* *ḫ* *uryaz*=*dda* (H)
zedġ-aġ *qrib* *ḫ* *uryaz*=*yya* (Z)
live:P-1S near on man:EA=PROX
‘I live next/near to this man.’

This preposition is also used in the following contexts:

(21) *i-serkus* *af* *emġarṯ* *nn-es* (K)
i-tkeddab *ḫ* *ṯemġarṯ* *nn-es* (H/Z)
3MS-lie:I on woman:EA of-3S
‘He lies to his wife.’
(22) *i-ḏṣa* *aḫf-es* (K)/*ḫf-es* (H)/*ḫḫ-es* (Z)
3MS-laugh:P on-3S
‘He laughed about (lit. ‘on’) him/her.’

9.2.2. Prepositions in *-g(ʷ)* that Take Special EA Forms

9.2.2.1. Overview

In some Senhaja varieties (Taghzut, Hmed, Zerqet), following certain prepositions ending in *g* (T/Z)/*gʷ* (H), masculine singular nouns have a special form of EA lacking the initial full vowel (cf. Section 6.2.4). This distinct form is labelled EA2 below. Feminine nouns take the regular EA.[625] There are three prepositions that take EA2 in Hmed and Zerqet, and two that take EA2 in Taghzut (since one of them does not end in *g*):

- the Locative *gʷ* (H)/*g* (T/Z) ‘in’;[626]
- the Dative *gʷ* (H)/*g* (Z) ‘for’, homonymous with the above preposition in H/Z;[627]
- the Ablative *zigʷ* (H)/*zeg* (T/Z) ‘from’.

[624] In this sense, it partly overlaps with the prepositions *kiḏ/ik* (Section 9.2.1.3) and *ġur* (Section 9.2.1.5).
[625] The label “EA(2)” indicates that the special form applies only to a group of nouns, namely masculine singular.
[626] The Locative *g* is also used in other Senhaja varieties. However, in other varieties (K/S/B), this preposition is followed by the regular EA, e.g. *g uḫyam* (K/S/B) ‘in the house’.
[627] In Taghzut, the Dative preposition is *iḏ*, and is not homonymous with the locative ‘in’.

For example:

- *g^{w} eḫḫam* (H),[628] *g eḫyam* (T/Z) ‘in the house’;
- *g^{w} erba* (H), *g erba* (Z) ‘for the boy’;
- *z(i)g^{w} eḫḫam* (H), *zg eḫyam* (T/Z) ‘from the house’.

This phenomenon has a historical background. Originally, there must have been a regular EA (e.g. *g weḫyam* ‘in the house’). The initial *w-* of the noun was transferred as labialization to the preposition (*g* > *g^{w}*), and labialization was subsequently lost in T/Z: *g weḫyam* > *g^{w} eḫyam* > *g eḫyam*. The intermediate stage is found in Hmed, where the preposition is realized as *g^{w}* in such contexts.

The following table presents simple prepositions that take nouns in EA and EA2 in H/Z with masculine singular nouns. The Ablative preposition ‘from’ can be followed by *ġur* ‘at’ to form a complex preposition (Section 9.3.2.2).

Simple prepositions that take EA/EA2 in specific varieties

Translation	**+Noun**			**+ Pronominal suffix**			**State**	
	K	**H**	**Z**	**K**	**H**	**Z**	**K**	**H/Z**
in (Locative)	g	i, g^{w}	i, g(i)	gi(g)-	ḏi(yy)-	ḏi(yy)-	EA	EA(2)
for (Dative)	i(ḏ)	i, g^{w}	i(ḏ), g(i)	---	---	---	EA	EA(2)
from (Ablative)	s, seg	zi, z(i)g^{w}	z(g)i, zeg	sgi(g)-	zi(yy)-	zi(yy)-	EA	EA(2)

9.2.2.2. *g(ʷ)~i* ‘in’

The preposition ‘in’ has different forms (and allomorphs) in different Senhaja varieties. In Ketama, the preposition has the form *g* (distinct from the Dative *iḏ*). In Hmed and Zerqet, prepositions ‘in’ and ‘for’ are homonymous. Compare:

- ‘in’: *g uḫyam* (K), *g^{w} eḫḫam* (H), *g eḫyam* (T/Z) ‘in the house’;
- ‘for’: *iḏ uḫčiw* (K), *g^{w} erba* (H), *g erba* (T/Z) ‘for the boy’.

Other examples with ‘in’ follow:

- *g elMeġreb* (K/T), *i lMeġreḇ* (H), *gi lMeġreb* (Z) ‘in Morocco’;
- *g Ṯargiṣṯ* (K/T), *i Ṯargiṣṯ* (H), *gi Ṯargiṣṯ* (Z) ‘in Targuist’;
- *g iberruqen nn-es* (K), *g iwallen nn-es* (H/T), *g waǧen nn-es* (Z) ‘in his/her eyes’.

[628] In Hmed, the word *aḫam* ‘house’ has no gemination, while *g^{w} eḫḫam* ‘in the house’ has a geminated *ḫḫ*.

With pronominal suffixes, the preposition has two allomorphs in Hmed and Zerqet: *ḏiyy-* when followed by singular pronominal suffixes, and *ḏi-* when followed by plural pronominal suffixes:[629]

- *gig-es* (K), *ḏiyy-es* (H/Z) 'in him/her/it';
- *gig-sen* (K), *ḏi-sen* (H/Z) 'in them'.

9.2.2.3. *i(ḏ)~g(ʷ)* 'for' (Dative)

The Dative preposition has the form *i(ḏ)* in Ketama, *i~gʷ* in Hmed, and *i(ḏ)~g(i)* in Zerqet. As mentioned above, in Hmed and Zerqet, it is homonymous with the preposition 'in'. In Ketama, it is homonymous with the coordinative conjunction *i(ḏ)* 'and'. For example:

- *iḏ iẖčiwen* (K), *i ddrari* (H), *gi ddrari* (Z) 'for the children'.

In Ketama, due to the regular assimilation, the final *-ḏ* of the preposition is realized as *-t* before feminine nouns that originally started on *ṯ-* (cf. the coordinator *iḏ* 'and'):

- *itˆeẖčiṯ nn-es* 'for/to his daughter' (homonymous with 'and his daughter').

The Dative preposition does not take pronominal suffixes. Instead, it can be followed by independent pronouns, e.g.

- *i netta* (K/H/Z) 'for him'

More commonly, IO clitic pronouns are used (cf. Section 5.3.2). The IO clitic and the Dative prepositional phrase can co-occur (cf. Section 5.3.2.4 on doubling by means of a clitic, or double reference), e.g.

(23) *i-nna* *ˆ(a)s* *i* *netta* (pan-Snh.)
3MS-say:P ˆ3S:IO to he
'He said to him.'

9.2.2.4. *s(eg)~z(g)i* 'from' (Ablative)

As mentioned earlier, the Ablative preposition 'from' (movement away from a location) is homonymous with the Instrumental preposition 'with' in parts of Senhaja. In Ketama, both forms of the preposition (i.e. the one used with nouns and the one

[629] Cf. the Ablative *zi(yy)-* (H/Z) discussed below, which is homonymous in Zerqet with the instrumental *zi(yy)-* discussed above.

used with pronominal suffixes) are homonymous. In Zerqet, only the forms used with pronouns are homonymous. In Hmed, both forms are distinct. Some examples follow:

- *s(g) urgaz* (K), *z(i)g^{w} eryaz* (H), *zg eryaz* (Z) ‘from the man’;
- *s(g e)ssuq* (K), *zi ssuq* (H), *sgi ssuq* (Z) ‘from the market’.

(24) *i-ffaġ* *s(g)* *uḫḫam* *nn-es* (K)
i-ffaġ *z(i)g^{w}* *eḫḫam* *nn-es* (H)
i-ffaġ *zg* *eḫyam* *nn-es* (Z)
3MS-exit:P from house:EA2 of-3S
‘He went out from his house.’

With pronominal suffixes, the preposition has two allomorphs in Hmed and Zerqet: *ziyy-* when followed by singular pronominal suffixes, and *zi-* when followed by plural pronominal suffixes:[630]

- *sgig-es (~sgiyy-es)* (K), *ziyy-es* (H/Z) ‘from it’;
- *sgig-sen (~sgiy-sen)* (K), *zi-sen* (H/Z) ‘from them’;
- *yan sgig-na* (K), *igg^{w}en zi-naġ* (H), *iwwen zi-naġ* (Z) ‘one of us’ (lit. ‘one from us’).

9.2.3. Prepositions that Can Take EL

9.2.3.1. Overview

There are some prepositions that take EL nouns, obligatory or optionally (alongside EA), also depending on the variety and (exceptionally, as in the case of the Allative *za* ‘to’) on the gender of the noun. Some of these prepositions can be followed by the Genitive *n* ‘of’. In this case, the following noun is always in EA. The following table presents an overview of the prepositions that allow nouns in EL at least in one Senhaja variety. In the ‘state’ column, the state of the noun following the simple preposition (when used without *n*) is listed. In Ketama, the prepositions *ffir n* ‘behind’ and *qeddam n* ‘in front of’ are always followed by the Genitive *n* before nouns, but are simple (*ffir-* and *qeddam-*, respectively) before pronouns.

[630] Cf. the homonymous Instrumental *zi(yy)-* ‘with’ in Zerqet, and the Ablative preposition *zi(yy)-* ‘from’ in Hmed/Zerqet.

Transl.	+Noun			+Pronominal suffix			State		
	K	H	Z	K	H	Z	K	H	Z
like	(h)anda	andaġ	andaġ	----	----	----	EL	EL	EL
without	bla	bla	bla	bla sgi(g)-	bla zi(yy)-	bla zi(yy)-	EL	EA/ EL	EA/EL
to	ar (alˆ)	za	za	---	---	---	EA	EL (*m*), EA (*f*)	
after, behind	ffir n	ffir (n)	ffir (n)	ffir-	ffir-	ffir-	EA	EA/EL (*m*), EL (EA) (*f*)	
on, above	---	ngaġef (n)	---	---	---	---	---	EA/ EL	---
beside	qeddam n	staṭ~ staṭ n	zḏaṭ n	qeddam-	staṭ-	zḏaṭ-	EA	EL	EA
under	(g e)zdu n	z(i)du (n)	---	(s)g ezdaw-	zidawa-	---	EA	EL	---
before	qbel n	qbel	qbel	qbel sgi(g)-	qbel zi(yy)-	qbel zi(yy)-	EA	EL/ EA	EL

9.2.3.2. *(h)anda(ġ)* ‘like’ (Similative)

The Similative preposition *(h)anda* (K)/*andaġ* (H/Z) ‘like’ takes EL nouns in all varieties. This preposition does not take pronominal suffixes. Instead, it can be followed by independent pronouns.

Examples:

(25) *(h)andaˆ(a)rgaz inu* (K)
andaġ aryaz inu (H/Z)
like man:EL of:1S
‘like my husband’

(26) *(h)andaˆ(a)mġarṯ inu* (K)
andaġ ṯamġarṯ inu (H/Z)
like woman:EL of:1S
‘like my wife’

With pronouns:

- *anda(ġ) ḵeğ(ği)* (K/H/Z) ‘like you (MS)’
- *anda(ġ) netta* (K/H/Z) ‘like he’

9.2.3.3. *bla* 'without' (Comitative)

The preposition *bla* 'without' is simple when followed by a noun, but complex when followed by a pronominal suffix. This preposition is borrowed from Arabic. The following noun can be in EL or EA in Hmed and Zerqet. EA is preferred in Zerqet. In Ketama, by contrast, EL is normally used.[631]

Some examples:

- *bla (y)argaz* (K), *bla yaryaz* (H (Z)), *bla aryaz* (H), *bla weryaz* (H/Z) 'without a man';
- *bla yamġarṯ* (K), *bla ṯamġarṯ* (H (Z)), *bla ṯemġarṯ* (H/Z) 'without a woman'.

This preposition does not take pronominal suffixes. When followed by a pronoun, the complex form *bla* + the Ablative (=Instrumental in K/Z) *sgig-/sgiy-* (K)~*zi(yy)-* (H/Z) is used:

- *bla sgig-i* (K), *bla ziyy-i* (H/Z) 'without me';
- *bla sgig-naġ* (K), *bla zi-naġ* (H/Z) 'without us'.

In Hmed, *bla* can be also followed by the instrumental preposition:

- *blaˆyyess-i* (H) 'without me'; *blaˆyyes-naġ* (H) 'without us'.

In Ketama and Hmed, the borrowed from Arabic *bla bi-* also occurs. It is followed by Arabic pronominal suffixes (cf. Section 8.6.2.2), e.g.

- *bla bi-yya* (K/H) 'without me'; *bla bi-na* (K/H) 'without us'.

9.2.3.4. *ar~al* (K)/*za* (H/Z) 'to(wards)' (Allative)

The Allative preposition is *ar~al* in Ketama and *za* in Hmed/Zerqet. It has the meaning 'to, towards, in the direction of'.[632] For example:

(27) *dda-n* *ar* *Ṯargiṣṯ* (K)
dda-n *za* *Ṯargiṣṯ* (H)
ɛda-n *za* *Ṯargiṣṯ* (Z)
go:P-3P to Targuist
'They went to Targuist.'

[631] Nouns following *bla* 'without' can have EL or EA also in Ghomara (Mourigh 2015: 254).

[632] Senhaja has distinct prepositions for the allative (*ar/za* 'towards') and the locative *ġu(r)* 'at'. The same feature is found in Ghomara (Mourigh 2015: 256),

In Ketama, the preposition *ar~al* takes EA, while in Hmed/Zerqet, the state of the noun following *za* depends on the gender for Class I nouns: masculine nouns take EL, while feminine nouns take EA.[633] There is a difference in state between Ketama and Hmed/Zerqet with masculine nouns. As many masculine singular nouns start in *a-*, and *za* ends in *a*, one of the two vowels is usually elided. For example:

(28) *dda-n ar uḫḫam* (K)
go:P-3P to house:EA
dda-n zaˆ (a)ḫam (H)
ɛḏa-n zaˆ (a)ḫyam (Z)
go:P-3P to house:EL
'They went home.'

Compare the following examples with nouns that have *voyelle constante*. Such nouns have *wa-* in EA. The examples demonstrate that the nouns are in EL in Hmed/Zerqet following *za*:

- *ar warrar* (K), *zaˆ(a)rrar* (H/Z) 'to the threshing floor';
- *ar waman* (K), *zaˆ(a)man* (H/Z) 'to the water';
- *ar waššin* (K), *zaˆ(a)ššin* (H/Z) 'to the stable'.

When *za* is followed by a noun starting in *i-* (masculine singular or plural), the preposition can be realized either as *z* or *za* in Hmed (but as *za* in Zerqet), e.g.

- *zˆinisi* (H), *zaˆynisi* (H/Z) 'to the hedgehog'.

Class I feminine nouns take the EA following *za* (as following *ar*). In Hmed, the preposition can be reduced to *z* before the feminine prefix *ṯ-*:[634]

- *ar ḥanut* (K), *z eṯḥanuṭ* ~ *za ṯḥanuṭ* (H), *za ṯḥanut* (Z) 'to the shop'.

The Allative preposition does not take pronominal suffixes, as it does not combine with pronouns in its most basic meaning (movement towards a location). The Allative *ar/za* can be combined with *ġur* 'at' (see Section 9.3.2.3). On the combination of *ḥetta* and the Allative ('until'), see Section 9.3.2.4.

[633] The same is found in Middle Atlas varieties with the allative preposition *s*. In Kabyle, the Allative *s* takes EL for masculine nouns, and cannot be followed by consonant-initial nouns (this includes Berber-morphology feminine nouns as they have the prefix *ṯ-*). Just as in Kabyle, the motivating force behind this phenomenon in Senhaja could be purely phonetic, in view of vowel-initial vs. consonant-initial nouns.
[634] In Hmed, *za* can be reduced to *z* also before other consonants, e.g. *z(a) luzin* 'to the factory'.

9.2.3.5. *ffir (n)* ‘behind, after’ (Locative)

When preceding a noun, the preposition *ffir* ‘behind, after’ (locative/temporal) is followed by the Genitive *n* in Ketama. In Hmed and Zerqet, the Genitive *n* is optional. When not followed by the Genitive preposition, it can take nouns in EL in Hmed and Zerqet. While nouns of both genders can appear either in EL or EA following *ffir* in Hmed/Zerqet, there is a tendency to use EL especially with feminine nouns. In Ketama, where the Genitive *n* is obligatory (although it can be assimilated before *u-*), only nouns in EA occur. Some examples follow.

(29) *ffir (n) uḫyam* (K)
ffir (n) uḫam ~ ffir uḫam ~ ffir aḫam (H)
ffir (n) uḫyam ~ ffir uḫyam ~ ffir aḫyam (Z)
behind of house.EA ~ behind house:EA ~ behind house:EL
‘behind the house’

(30) *ffir n ṭṭabla* (K)
ffir n ṭṭabla ~ ffir ṭṭabla (H/Z)
behind of table ~ behind table
‘behind the table’

(31) *ffir n emġarṯ* (K)
ffir n ṯemġarṯ ~ ffir ṯamġarṯ ~ (ffir ṯemġarṯ) (H/Z)
behind of woman:EA ~ behind woman:EL~ behind woman:EA
‘behind a woman’

The preposition *ffir-* combines with pronominal suffixes:

(32) *i-dda ffir-es* (K/H)
i-ɛḏa ffir-es (Z)
3MS-go:P behind-3S
‘He went behind him/her.’

9.2.3.6. *ngaġef (n)* (H) ‘on (top of)’ (Locative)

The preposition *ngaġef (n)* ‘on top of, above’ is used in Hmed.[635] Synchronically, it can be considered as a single word, but etymologically, it contains the word *iġef* ‘head,

[635] There are various ways to express location ‘above, over, on top of’ in Senhaja: the preposition *af* (K)/*ḫ* (H/Z) ‘on’; *genna* (K/H/Z) ‘above/up’; *ṭalaɛ* (K/H/Z) ‘above, up’.

top'.[636] The element *nga* is not used outside this construction. The Genitive preposition *n* is optional. When not preceded by *n*, nouns can take either EA or EL. With pronominal forms, the Genitive preposition is obligatory.

(33) *ngaġef (n) uḫam ~ ngaġef uḫam ~ ngaġef aḫam* (H)
on.top of house:EA ~ on.top house:EA ~ on.top house:EL
'on top of/above the house.'

(34) *ngaġef n ṭṭabla ~ ngaġef ṭṭabla* (H)
on.top of table on.top table
'on top of/above the table.'

(35) *ngaġef n ṯeskyuṯ ~ ngaġf ṯeskyuṯ ~ ngaġef ṯaskyuṯ* (H)
on.top of tree:EA ~ on.top tree:EA ~ on.top tree:EL
'on the top of an (oak) tree'

With pronominal suffixes:

- *ngaġf enn-es* (H) 'on the top of it/ over it/above it'

On the combination of the Ablative *zi* 'from' and *ngaġef* 'on', see Section 9.3.2.6.

9.2.3.7. *qeddam n* (K)*/staṯ (n)* (H)*/zḏaṯ n* (Z) 'in front of'

The preposition 'in front of', next to' is *staṯ (n)* in Hmed and *zḏaṯ n* in Zerqet. It has been replaced by the Arabic loan *qeddam n* in Ketama.[637] Before nouns, these prepositions are followed by the Genitive *n* 'of' in Ketama and Zerqet, which is optional in Hmed. When there is no Genitive *n* in Hmed, the following noun takes the EL. The prepositions combine with pronominal suffixes without using the Genitive *n* (including the borrowed *qeddam-* in Ketama). Some examples follow.

(36) *qeddam n uḫḫam* (K)
zdaṯ (n) uḫyam (Z)
staṯ (n) uḫam ~ staṯ aḫam (H)
in.front of house:EA ~in.front house:EL
'in front of/beside the house'

[636] In Taghzut, the cognate preposition is *g ġef n* 'on top of'. In Ketama, *g iġef n* 'on top of' is also found, but is rare, as *gesni n* is preferred.

[637] For other ways to express 'in front of' in Ketama and Hmed, see Section 9.4.1.

(37) *qeddam n fiyyut* (K)
zdaṯ n tesklut (Z)
staṯ n ṯeskyuṯ ~ staṯ ṯaskyuṯ (H)
in.front of tree:EA ~ in.front tree:EL
'in front of/beside an oak tree'

With pronominal suffixes:

- *qeddam-es* (K), *staṯ-es* (H), *zḏaṯ-es* (Z) 'next to him/her'.

9.2.3.8. *(g) ezdu n* (K)*/z(i)du (n)* (H) 'under'

The preposition 'under' is *(g) ezdu n* in Ketama (where the initial *g* 'in' is optional) and *z(i)du (n)* in Hmed (with the optional *n* 'of'). The following noun always takes EA in Ketama (as it follows the Genitive *n*), while in Hmed, the noun can be both in EL or in EA if not preceded by *n*. With pronominal suffixes, the preposition has the form *g ezdaw-* in Ketama and *zidawa-* in Hmed (without the Genitive *n*). There is no cognate preposition in Zerqet.[638] Some examples follow:

(38) *(g) ezdu (n) uḫyam* (K)
(in) under of house:EA
z(i)du (n) uḫam ~ z(i)du uḫam ~ z(i)du aḫam (H)
under of house:EA ~ under house:EA ~ under house:EL
'under/below the house'

(39) *ezdu n ṭṭabla* (K)
z(i)du n ṭṭabla ~ z(i)du ṭṭabla (H)
under of table ~ under table
'under the table.'

(40) *(g) ezdu n fiyyut* (K)
(in) under of tree:EA
z(i)du n ṯeskyuṯ ~ z(i)du ṯeskyuṯ ~ z(i)du ṯaskyuṯ (H)
under of t ree:EA ~ under tree:EA ~ under tree:EL
'under/below the oak tree'

[638] To express location 'under', Zerqet employs the word *ṯili* which also means 'shadow', followed by the Genitive *n*, e.g. *ṯili n uḫyam* 'under the house'; *netta ṯili nnes* 'He is under it'.

Depending on the context, in Ketama, *g ezdu n* can follow the Allative *ar* or the Ablative *s(g)*, e.g.

(41) *mšiš i-rwi ar g ezdu n ṭṭabla* (K)
cat 3MS-flee:P to in under of table
'The cat fled (towards) under(neath) the table.'

(42) *mšiš i-ffaġ s g ezdu n ṭṭabla* (K)
cat 3MS-exit:P from in under of table
'The cat went out from under(neath) the table.'

With pronominal suffixes:

- *g ezdaw-es* (K), *zidawa-s* (H) 'under it/him/her'

9.2.3.9. *qbel (n)* 'before'

The preposition *qbel (n)* 'before' usually has a temporal meaning, but can be used as a spatial 'before', too.[639] In Ketama, it is always followed by the Genitive *n*, and the following noun is in EA. In Zerqet, there is no *n*, and the following noun is always in EL.[640] In Hmed, *n* is optional; when there is no *n*, both EL and EA nouns occur.

(43) *qbel n egzay* (K)
before of midday
qbel azil (Z)
qbel azay ~ *qbel (n) uzay* (H)
before midday:EL ~ before (of) midday:EA
'before midday'

(44) *qbel (n) uḫyam* (K)
before of house:EA
qbel aḫyam (Z)
qbel aḫam ~ *qbel (n) uḫam* (H)
before house:EL ~ before (of) house:EA
'before the house'

In Hmed, *qbel* can be followed by the Ablative preposition *zig*^{w} 'from' without a change in meaning. The following noun is in EA:

[639] It also functions as a conjunction, e.g. *qbel ma d=y-as azil* (Z) 'before midday arrives'.

[640] Nouns following *qbel* 'before' have EL also in Ghomara (Mourigh 2015: 254).

(45) *qbel* *zig*^{w} *eḫḫam* (H)
before from house:EA
'before the house'

(46) *qbel* *n* *ṭṭabla* (K (H))
before of table

(47) *qbel* *ṭṭabla* (H/Z)
before table
'before the table'

(48) *qbel* *n* *fiyyut* (K)
before of tree:EA

(49) *qbel* *ṭasklut* (Z)
qbel *ṭaskyuṭ* ~ *qbel* *n* *ṭeskyuṭ* ~ *qbel* *ṭeskyuṭ* (H)
before tree:EL ~ before of tree:EA ~ before tree:EA

This preposition does not take pronominal suffixes. When pronominalized, the complex form *qbel* + the Ablative *sg(ig)-* (K)*/zi(yy)-* (H/Z) is used (cf. the preposition *bla* 'without'), e.g.

- *qbel sgig-es* (K), *qbel ziyy-es* (H/Z) 'before it';
- *qbel sgig-sen* (K), *qbel zi-sen* (H/Z) 'before them'.

9.3. Complex and Combined Prepositions

9.3.1. Complex Prepositions

9.3.1.1. Overview

Complex prepositions take the Genitive *n*, and the following nouns are always in EA. Some (optionally) complex prepositions have been discussed above.[641] From the following two complex prepositions, the first one (*gesni n* 'on top of') has a pronominal form *gesnig-* without the Genitive.

Transl.	**+Noun**			**+Pronominal suffix**		
	K	**H**	**Z**	**K**	**H**	**Z**
on, over	gesni n	---	---	gesnig-	---	---
as big as, like	aštin n	anešt n	anešt n	aštin n(n)-	anešt n(n-)	anešt n(n-)

[641] As mentioned above, some prepositions are ambiguously complex because the Genitive *n* is optional. Those of them that take EL when *n* is absent, are discussed in Section 9.2.3.

9.3.1.2. *gesni n* (K) 'on (top of), above, over'

The preposition 'on top of, above, over' in Ketama is based on the element *sni* that does not occur on its own that follows *g* 'in' and is followed by *n* 'of'. With pronominal suffixes, the preposition takes the form *gesnig-*, and the Genitive preposition is not used. Some examples follow:

(50) *gesni (n) uḫyam* (K)
on.top of house:EA
'on top of/above/over the house'

(51) *gesni n ṭṭabla* (K)
on.top of table
'on top of/above/over the table'
'on top of/above/over the table'

With the pronominal form:

(52) *ha-w gesnig-es* (K)
here-3MS on.top.of-3S
'He is on top of/above it.'

No cognate prepositions have been found in Hmed or Zerqet. In Hmed, the composite preposition *ngaġef (n)* (Section 9.2.3.6) can be considered an equivalent of the Ketama *gesni n*.

9.3.1.3. *aštin n* (K)/*anešt n* (H/Z) 'as big/old as'

The prepositional phrase *aštin n* (K)/*anešt n* (H/Z) means 'as big as', 'as old as'. Some examples follow.

(53) *aḫčiw nn-eḵ aštin (n) uḫčiw inu* (K)
arba nn-eḵ anešt (n) urbaˆ ynu (H/Z)
son:EA of-2MS as.big.as of son:EA of:1S
'Your (MS) child is as big/old as my child.'

(54) *aḫčiṯ inu aštin n wiyṯma-ḵ* (K)
girl:EL my as.big.as of sister-2MS
ṯarbaṯ inu anešt n ṯešqiqṯ nn-eḵ (H/Z)[642]
girl:EL of:1S as.big.as of sister:EA of-2MS
'My daughter is as big/old as your sister.'

[642] In Zerqet, *nˆtešqiqṯ* without spirantization of *ṯ* following *n*.

(55) *Muḥemmeḏ* *aštin* *n* *baba* (K)
Muḥemmed *anešt* *n* *baba* (H/Z)
Mohammed as.big.as of father.my
'Mohammed is as big/old as my father.'

With pronominal forms:

(56) *nekki* *aštin* *nn-es* (K)
nek(kini) *anešt* *nn-es* (H/Z)
I as.big.as of-3S
'I am as big/old as he/she', 'I am his/her age~size.'

In combination with 1S *inu* 'my' (of:1S), Ketama employs the portmanteau form *aštinˆnu*, while **aštin inu* is not used:[643]

(57) *aḫčiw* *nn-eḵ* *aštin* *ˆnu* (K)
arba *nn-eḵ* *anešt* *inu* (H/Z)
son:EL of-2MS as.big.as of:1S
'Your (MS) child is as big/old as I.'

In Zerqet, the reduplicated form *anešt anešt* functions as an adverb (cf. *ged ged* ~ *qed qed* borrowed from Arabic in Ketama and Hmed). In this case, it is not followed by a noun. In Hmed, *anešt* can also appear clause-finally without a following noun, but is not reduplicated. In Ketama, *aštin* cannot be used clause-finally and is not reduplicated. Compare the following examples:

(58) *nekki* *aštin* *n* *Muḥemmeḏ* (K)
nekkini *anešt* *n* *Muḥemmeḏ* (H/Z)
I as.big.as of Mohammed
'I am as big/old as Mohammed.'

(59) *nek* *iḏ* *Muḥemmeḏ* *anešt* (H)
I with Mohammed as.big.as
nek *ḏ* *Muḥemmeḏ* *anešt* *anešt* (Z)
I with Mohammed as.big.as as.big.as
'I am as big/old as Mohammed.'

[643] Compare the pronominal head in combination with the 1S pronoun, Section 8.4. This does not happen with regular nouns.

(60) *nekkin* *i* *Muḥemmeḏ* *ged* *ged* ~ *qed* *qed* (K)
I and Mohammed same same ~ same same
nekkini *iḏ* *Muḥemmeḏ* *ged* *ged* ~ *qed* *qed* (H)
I with Mohammed same same ~ same same
'I am as big/old as Mohammed.'

9.3.2. Combined Prepositions

9.3.2.1. Overview

Some prepositions can be combined. The following table presents an overview. Besides some combinations of the prepositions discussed above, there are two prepositions containing the element *ḥetta* (not discussed previously). The state of the noun is the same as when following the last preposition when used alone. For example, nouns following *ḥetta* with the Allative take the same state as following the Allative (Section 9.2.3.4): always EA in Ketama, and depending on the gender in Zerqet (masculine singular nouns are in EL). For the remaining combined prepositions, they all take EA, except *zi ngaġef* without the Genitive *n*.[644]

Transl.	**+Noun**			**+Pronominal suffix**		
	K	**H**	**Z**	**K**	**H**	**Z**
from smb. (from + at)	s ġu(r), s gu(ḏ)	zi ġur	z(g)i ġur	s ġur-	zi ġur-	z(g)i ġur-
to smb. (to + at)	ġu(r), gu(ḏ)	za ġur	za ġur	a ġur-	za ġur-	za ġur-
until (*ḥetta* + to)	ḥetta ar	ḥetta za	ḥetta za	---	---	---
toward (until + at)	ḥetta(ˆa) ġu(r), gu(ḏ)	ḥetta za ġur	ḥetta za ġur	ḥetta(ˆa) ġur-	ḥetta za ġur-	ḥetta za ġur-
from the top of		zi ngaġef (n)				
from (from + on)	s af	zi ḫ	---	s aḫf-	zi ḫf-	---

9.3.2.2. *s* (K)/*zi* (H/Z) and *ġur* 'from (someone)'

The Ablative preposition *s*~*z(g)i* 'from' can be combined with *ġur* 'at' to express direction from someone/someone's place. For example:

[644] Following *ngaġef*, either EL or EA can be used (Section 9.2.3.6).

(61) *s* *gu* *Muḥemmeḏ* (K)
zi *ġu* *Muḥemmeḏ* (H/Z)
z(g)i *ġu* *Muḥemmeḏ* (Z)
from at Mohammed
'from Mohammed('s place)'

(62) *s* *guˆ* *(u)rgaz* *inu* (K)
zi *ġur* *uryaz* *inu* (H/Z)
zgi *ġur* *uryaz* *inu* (Z)
from at man:EA of:1S
'from my husband'

(63) *i-dda* =*d* *s* *gu* *gma-s* (K)
3MS-go:P =VC from at brother-3S
i-wsa =*d* *zgi* *ġur* *ušqiq* *nn-es* (Z)
3MS-come:P =VC from at brother.EA of-3S
'He came from his brother('s place).' (lit. 'from at his brother')

More rarely, this construction can be followed by an inanimate noun, denoting a location near to something, e.g. (Hmed):

(64) *i-da* =*d* *zi* *ġur* *uḫam* *nn-es* (H)
3MS-go:P =VC from at house.EA of-3S
'He came from (near to) his house.'

With pronominal suffixes:

- *s ġur-es* (K), *zi ġur-es* (H), *z(g)i ġur-es* (Z) 'from him/her'.

9.3.2.3. *za* (H/Z) and *ġur* 'towards (someone)'

The preposition *ġur* can be preceded by the Allative *za* (H/Z) 'to' (see Section 9.3.2.3) to express direction to someone/someone's place.[645] In Ketama, the Allative *a(r)* is normally absent in such constructions, but is obligatorily present in combination with *ġur-* + pronominal suffixes. For example:

(65) *š-a* *ddu-ġ* *ġuḏ* *urgaz* *inu* (K)
š-a *ddu-ġ* *(za)* *ġur* *uryaz* *inu* (H)
š-a *ɛḏu-ġ* *(za)* *ġur* *uryaz* *inu* (Z)
FT-NR go:A-1S to at man:EA of:1S
'I will go to my husband.'

[645] Compare the preposition *l-ɛend* in Moroccan Arabic. The combination of the allative and locative prepositions is also found in Ghomara (Mourigh 2015: 257).

With inanimate objects, in Hmed, *za+ġu(r)* indicates the direction towards a location, e.g.

(66) *za* *ġu* *ṯḥanuṭ* (H)
to at shop:EA
'towards the shop'

With the pronominal suffixes:

(67) *qerrb* *=iṯ* *a* *ġur-es* (K)
qerrb *=iṯ* *za* *ġur-es* (H/Z)
bring:IMP:SG =3MS:DO to at-3S
'Bring it (M) close(r) to him/her!'

9.3.2.4. *ḥetta ar~al* (K)/*ḥetta za* (H/Z) 'until'

The preposition 'until' consists of the element *ḥetta* (an Arabic loan) followed by the Berber Allative preposition (Ketama *ar~al*, Hmed/Zerqet *za*). In Ketama, the initial *a-* of the Allative is assimilated to *ḥetta*, but the occasional presence of the final *-r* betrays the presence of the Allative preposition. However, also the final *-r* can be sometimes absent (see below), and in this case, the Allative is invisible. The element *ḥetta* on its own can have other meanings, depending on the context, such as 'also' and (conjunction) 'until' (cf. Section 12.4.5). Compare:

- *ḥetta yaḫḫam* (K), *ḥeṭṭaˆ(a)ḫam* ~ *ḥeṭṭaˆyaḫam* (H), *ḥetta yaḫyam* (K/Z) 'also the house';
- *ḥettaˆ(a)r uḫyam* (K), *ḥetta zaˆ(a)ḫam* (H), *ḥetta zaˆ(a)ḫyam* (Z) 'until the house'

For example:

- *ḥettaˆ(a)r izref* (K), *ḥetta z izref* (H), *ḥetta za yzerf* (Z) 'until the road'

(68) *i-dda* *ḥettaˆ* *(a)r* *uḫḫam* (K)
3MS-go:P until to house:EA
i-dda *ḥetta* *zaˆ* *(a)ḫam* (H)
i-ɛda *ḥetta* *zaˆ* *(a)ḫyam* (Z)
3MS-go:P until to house:EL
'He went until the house.'

With the temporal sense:
- *ḥettaˆ(a)r ššetwa* (K), *ḥetta za ššetwa* (H/Z) 'until winter'.

In the following example, the Allative preposition is invisible (completely assimilated) in Ketama, but present in Hmed and Zerqet:

(69) *ḥetta^(a)* *(a)wazka* (K)
*ḥetta za^* *(a)zekka* (H/Z)
until to tomorrow
'until tomorrow'

The preposition *ḥetta* with the Allative 'to' does not take pronominal suffixes. On the combination of *ḥetta* (+ optionally the Allative 'to') with *ġur* 'at', see Section 9.3.2.5; *ḥetta ġur-* can take pronominal suffixes.

9.3.2.5. *ḥetta* and *ġur* 'toward'

The preposition *ḥetta* (+ optionally the Allative 'to') 'until' can be followed by *ġur* 'at' to express 'toward'. The complex *ḥetta* (+Allative) + *ġur-* can take pronominal suffixes. Examples follow:

(70) *ḥetta (^a)* *guḏ* *urgaz* *nn-es* (K)
ḥetta (za) *ġur* *uryaz* *nn-es* (H/Z)
until to at man:EA of-3S
'toward her husband'
(71) *ḥetta (^a)* *ġuḏ* *uḫyam* *nn-es* (K)
ḥetta (za) *ġur* *uḫam* *nn-es* (H)
ḥetta (za) *ġur* *uḫyam* *nn-es* (Z)
until to at house:EA of-3S
'toward her/his house'
(72) *ḥetta (^a)* *ġur-es* (K)
ḥetta (za) *ġur-es* (H)
ḥetta (za) *ġur-es* (Z)
until to at-3S
'toward him/her/it'.

9.3.2.6. *zi* and *ngaġef (n)* (H) 'from'

In Hmed, the preposition *ngaġef (n)* 'on (top of)' can follow the Ablative preposition *zi* 'from' to denote 'from', 'from the top of'. The noun is in EA if it follows *n*. If there is no *n*, the form of the noun can be in EA or EL (cf. Section 9.2.3.6):
- *zi ngaġef n uḫam* ~ *zi ngaġef uḫam* ~ *zi ngaġef aḫam* (H) 'from (the top of) the house'.

9.3.2.7. *s* (K)/*zi* (H/Z) and *af* (K)/*ḫ* (H/Z) 'on'

The Ablative *s* (K)/*zi* (H/Z) 'from' can be combined with *af* (K)/*ḫ* (H/Z) 'on' without a change in meaning ('from').[646] Furthermore, in Zerqet, *z(g)i* 'from' can be also combined with *genna n* 'on' (Section 9.4.1.4). For example:

(73)	*s*	*fiyyut*	~	*s*	*af*	*fiyyut*					(K)
	zi	*ṭeskyuṭ*	~	*zi*	*ḫ*	*ṭeskyuṭ*					(H)
	z(g)i	*ṭesklut*	~	*z(g)i*	*ḫ*	*ṭesklut*	~ *z(gi)*	*genna*	*n*	*ṭesklut*	(Z)
	from	tree:EA	~	from	on	tree:EA	~ from	above	on	tree:EA	
	'from the (oak) tree'										

(74)	*Muḥemmeḏ*	*i-sserḫa*	*arba=yaḏ*	*s*	*(af)*	*fiyyut*	(K)
	Muḥemmeḏ	*i-shuwwed*	*arba=dda*	*zi*	*(ḫ)*	*ṭeskyuṭ*	(H)
	Muḥemmeḏ	*i-shuwwed*	*arba=yya*	*z(g)i*	*(ḫ)*	*ṭesklut*	(Z)
	Mohammed	3MS-CAUS:descend:P	boy:EL=PROX	from	(on)	tree:EA	
	'Mohammed brought this boy down from the (oak) tree'.						

The pronominal forms in Ketama and Hmed are, for example:

- *s aḫf-es* (K), *zi ḫf-es* (H), 'from him/her/it'.

9.4. Locative Expressions

This section discusses some locative expressions.[647] The locative expressions contain the Genitive *n*, and the following nouns are in EA. There are no pronominal forms. Section 9.4.1 presents locative expressions based on nouns that can be considered grammaticalized to different degrees. The nouns can be used without preceding prepositions, and mark no state distinction. There are dialectal differences in the degree of grammaticalization, and also in semantics. For comparison, Section 9.4.2 presents locative expressions with the regular nouns. Such nouns follow a preposition and can mark states.

The border between grammaticalized and regular nouns is not watertight. Furthermore, in Senhaja, some nouns can be used adverbially without preceding prepositions, while preserving their nominal characteristics. Again, there are dialectal differences. For example, in Zerqet, the noun *ğğiha* 'region' can appear without a

[646] This construction is not used by some young speakers in Zerqet, but is used by the older generation.

[647] On semantics and pragmatics of locative expressions, see Herskovits 1985.

preceding preposition in the following example. In Ketama and Hmed, by contrast, the preposition 'in' is required. Compare:

(75) *h-nn-eqleb* *yan* *ṭṭumubil* *g* *eẓẓiha* *n* *Ktama* (K)
ṯ-enn-eqyeb *ṭṭumubil* *i* *ẓẓiha* *n* *Ktama* (H)
ṯ-enn-eqleb *un* *ṭṭunubin* *(gi)* *ǧǧiha* *n* *Ktama* (Z)
3FS-PASS-turn:P one car in region of Ketama
'A car has flipped over in the region of Ketama.'

In the following examples, the Allative 'to' cannot be omitted in Ketama, but is optional in Hmed and Zerqet:

(76) *i-rkem* *ar* *mazirṯ* *nn-es* (K)
i-gg^{w}eḏ *za* *ṯmazirṯ* *nn-es* ~ *i-gg^{w}eḏ* *ṯamazirṯ nn-es* (H)
i-wweḏ *za* *ṯmazirṯ* *nn-es* ~ *i-wweḏ* *ṯamazirṯ nn-es* (Z)
3MS-arrive:P to land:EA of-3S ~ 3MS-arrive:P land:EL of-3S
'He arrived to his homeland'.

9.4.1. Locative Expressions with Grammaticalized Nouns

The following nouns can function in locative expressions without preceding prepositions:

Base noun	**Meaning with *n***
amraḏ (K), *am(eḏ)laḏ* (Z), *ṯamiḏa* (H) 'front'	*amraḏ n* (K), *am(eḏ)laḏ n* (Z), *ṯamiḏa n* (H) 'in front of'
allaġ (H) 'bottom'	*(g^{w}) allaġ n* (H) 'under'
ṯili (Z) 'shadow'	*ṯili n* (Z) 'under'
genna (Z) 'sky'	*genna n* (Z) 'on/above'
ṭalaɛ (Z) 'top, above'	*ṭalaɛ n* (Z) 'on (top of)'
agemmaḏ (K/Z), *ayemmaḏ* (H) 'opposite side'	*agemmaḏ-an n* (K), *ayemmaḏ-in n* (H), *agemmaḏ-in n* (Z) 'on the opposite side of'

9.4.1.1. *amraḏ n* (K)/*am(eḏ)laḏ n* (Z)/*ṯamiḏa n* (H) 'in front of'

In Senhaja, 'in front of' can be expressed by a prepositional phrase based on *amraḏ* (K)/*amlaḏ*~*ameḏlaḏ* (Z)/*ṯamiḏa* (H) combined with the Genitive preposition *n*.[648] While

[648] Cf. Section 9.2.3.7 for an alternative construction: *qeddam n* (K)/*staṯ (n)* (H)/*zḏaṯ n* (Z).

amraḏ (K) and *am(eḏ)laḏ* (Z) look like nouns, they have no state opposition. In Hmed, *ṯamiḍa* has a state distinction (EA *ṯmiḍa*). A further difference between Hmed and the other varieties is that in Hmed, the noun can appear following the preposition *i* 'in' (*b*). This is ungrammatical in Ketama and Zerqet. Compare:

(77) (a) *netta waqef amraḏ (n) uḫyam nn-es* (K)
netta waqef am(eḏ)laḏ (n) uḫyam nn-es (Z)
neṭṭa waqef ṯamiḍa (n) uḫam nn-es (H)
3MS standing.MS front of house.EA of-3S

(b) *neṭṭa waqef i ṯmiḍa (n) uḫam nn-es* (H)
3MS standing.MS in front:EA of house.EA of-3S
'He is standing in front of his house.'

With a feminine noun:

(78) *amraḏ n fiyyut* (K)
am(eḏ)laḏ n tesklut (Z)
ṯamiḍa n ṯeskyuṯ (H)
front of oak.tree:EA
'in front of an oak tree'

The following example (*a*) illustrates the use of the noun *ṯamiḍa* in EA following the Allative *za* 'to' in Hmed. In Zerqet, the preposition *za* is also used in this case (*b*). The form of *am(eḏ)laḏ* remains unchanged (masculine singular nouns take EL following *za*). The Ketama equivalent with the Allative *ar* is ungrammatical (*c*), and only the construction without *ar* is possible (*d*).

(79) (a) *š-a ddu-ġ za ṯmiḍa n uḫam inu* (H)
FT-NR go:A-1S to front:EA of house:EA of:1S

(b) *š-a ɛḏu-ġ za (a)meḏlaḏ (n) uḫyam inu* (Z)
FT-NR go:A-1S to front of house:EA of:1S

(c) **š-a ddu-ġ ar umraḏ (n) uḫyam inu* (*K)
FT-NR go:A-1S to front:EA of house:EA of:1S

(d) *š-a ddu-ġ amraḏ (n) uḫyam inu* (K)
FT-NR go:A-1S front of house:EA of:1S
'I will go to the front of my house.'

With pronominal suffixes: *amraḏ nn-es* (K), *ṯamiḍa nn-es* (H), *amlaḏ nn-es* (Z) 'in front of him/her/it', 'next to him/her/it'.

9.4.1.2. *(gʷ) allaġ n* (H) ‘under’

In Hmed, alongside *z(i)du* ‘under’, there is a prepositional complex *(gʷ) allaġ n* ‘under’. The word *allaġ* is a noun (EA *wallaġ*) and can also be used on its own in the sense ‘bottom’. As *ṭamiḍa* ‘front’ discussed above, *allaġ* is optionally preceded by *i/gʷ* ‘in’. It can also take the deictic clitic *in*: *gʷ allaġ=in n*.[649]

(80) *ha-w (gʷ) allaġ (n) uḫam* (H)
here-he in bottom of house:EA
‘He is under/below the house.’

(81) *ha-w (gʷ) allaġ n ṭṭabla* (H)
here-he in bottom of table
‘He is under/below the table.’

(82) *ha-w (gʷ) allaġ n ṭeskyuṭ* (H)
here-he in bottom of oak.tree:EA
‘He is under/below the oak tree.’

In Zerqet, the cognate word is *ažiġ*. However, it is not used in the same context as in Hmed, and the following sentence is considered ungrammatical:

(83) **ažiġ (n) uḫyam* (Z)
below of house:EA
(Intended): ‘under/below the house’

Instead, Zerqet employs the prepositional complex *ṭili n* ‘under’ (see the following Section). The word *ažiġ* is used in Zerqet in the following contexts:

(84) *aq=eṭ g ažiġ* (Z)
QA=3MS:DO in bottom
‘It/He is below/downstairs.’

(85) *sir awi =d lbaḷa zg ažiġ* (-) (Z)
sir awi =d lbaḷa zigʷ allaġ =in (H)
Go:IMP:SG bring:IMP:SG =VC spade from bottom=DIST
‘Go bring the spade from below.’

[649] Cf. Section 6.6 on nominal deictic clitics.

In Hmed, *allaġ=in* (but not *allaġ*) can also function as an adverb. The difference with Zerqet is that in Hmed, *allaġ* can be linked (by means of the Genitive *n*) to the following noun, while this is not possible in Zerqet.

With pronominal forms: *(g^{w}) allaġ nn-es* ‘under/below it’.

9.4.1.3. *ṯili n* (Z) ‘under’

In Zerqet, *ṯilin n* is used in the sense ‘under, below’, e.g. *ṯili n zzerbiyya* ‘under the carpet’, *ṯili n ṭṭabla* ‘under the table’, *ṯili (n) uḫyam* ‘under the house’, *ṯili lˆlmalṭa* ‘under the blanket’, *ṯiliˆynu* ‘under me’, *ṯili nn-es* ‘under him/her/it’. The word *ṯili* was originally used in the sense ‘shade, shadow’ (currently being replaced by the Arabic loan *ḍḍel* in this meaning in Zerqet).[650] The noun *ṯili* can be still used in its original sense following the preposition *gi* ‘in’; however, the Arabic loan *ḍḍel* is more frequently used:

- *gi ṯili* (Z, rare) ~ *gi ḍḍel* (Z, more frequent) ‘in the shadow’;
- *aq-eṯ gi ṯili* ~ *aq-eṯ gi ḍḍel* (Z) ‘He is in the shadow.’

9.4.1.4. *genna n* (Z) ‘above, on’

The words *genna* and *ṭalaɛ* can appear on their own and function as adverbs, or can appear in prepositional phrases. These words can follow the Ablative preposition ‘from’ or the Allative ‘to’, and can be followed by the Genitive *n*. The word *genna* originally meant ‘sky’ (currently replaced by the Arabic loan *ssma* ~ *ssama*) but came to mean ‘above (in the sky)’ (K/H/Z) and generally ‘above, on top, over’ in Zerqet. In Hmed, there is a distinction between *genna* ‘above (in the sky)’ and *yenna* ‘sky’ (alongside *ss(a)ma*).

(86) *zuger* *nnžum* *genna* (K)
ẓeṛ *nnžum* *genna* (H)
ḫzer *nnžum* *genna* (Z)
see:IMP:SG stars above
‘See the stars above/ in the sky!’

[650] In Ketama, the word for ‘shade’ has been completely replaced by the Arabic *ḍḍel*. In Hmed, the cognate lexeme *ṯiyyi* ‘shade’ is preserved, but is not used in the sense ‘under’. For ‘under’, Hmed employs *z(i)du*, and Ketama *(s)g ezdu (n)*.

(87) *s* *genna* (K)
zi *genna* (H/Z)
from above
'from above/from the sky'

(88) *ar* *genna* (K)
za *genna* (H/Z)
to above
'upwards/to the sky'

The word *genna* can be followed by the Genitive *n* in the sense 'on top of' ('in the sky above of'). In Ketama and Zerqet, *genna* in this construction is optionally preceded by the Ablative *s* (K)/*zi* (Z) 'from'. In Hmed, the Ablative *zi* is absent in such examples. This construction is especially frequent in Zerqet, where it is used in the general meaning 'on top of, on' (followed by any object, both indoors and outdoors). In Ketama and Hmed, this construction is rare, and can be only understood as 'in the sky above of' (i.e. it has to be outdoors). For a general 'on top of, on', other expressions are used in Ketama and Hmed. For example:

(89) *(s)* *genna (n)* *uḫyam* (K) (rare); better: *g esni (n) uḫyam* (K)
(---) *genna (n)* *uḫam* (H) (rare); better: *ngaġef (n) uḫam* (H)
(zi) *genna (n)* *uḫyam* (Z)
(from) above of house:EA on top of house:EA
'above/on the house'

(90) *(s)* *genna n essḍaḥ* (K) (rare); better: *g esni n essḍaḥ* (K)
(---) *genna n essḍaḥ* (H) (rare); better: *ngaġef n essḍaḥ* (H)
(zi) *genna n ssḍaḥ* (Z)
(from) above of roof on top of roof
'above/on the roof'

The following Zerqet example is unnatural in Ketama and Hmed, because in these varieties, for *genna* to be used in the sense 'above', it has to be outdoors, i.e. 'above in the sky':

(91) (?) *genna n ṭṭabla* (?) > better: *g esni n ṭṭabla* (K)
(?) *genna n ṭṭabla* (?) > better: *ngaġef n ṭṭabla* (H)
genna n ṭṭabla (Z)
above of table on top of table
'on top of/above the table'

The interpretation ‘on’ vs. ‘above’ in Zerqet depends on the context, e.g.

(92) *sstilu aq =eṭ (zi) genna n ṭṭabla* (Z)
pen QA = 3MS:DO (from) above of table
‘The pen is on the table.’

(93) *llamba aq = et (zi) genna n ṭṭabla* (Z)
lamp QA = 3FS:DO (from) above of table
‘The lamp is on/above the table.’

The construction *genna nn-* with the pronominal forms is found in Hmed and Zerqet:[651]

(94) *genna nn-es* (H/Z)
above of-3S
‘above him/her/it’

9.4.1.5. *ṭalaɛ n* (Z) ‘above, on’

The word *ṭalaɛ* can function as a noun ‘top, roof’, as an adverb ‘above’, as a preposition ‘on (top of), above’, depending on the context and the dialect.[652] For example:[653]

(95) *i-dda ar ṭalaɛ* (K)
i-dda (za) ṭalaɛ (H)
i-ɛḏa za ṭalaɛ (Z)
3MS-go:P to up
‘He went up.’

There is a free variant *ḏalaɛ* in Ketama and Zerqet. In Hmed, when followed by a Genitive phrase, *ṭalaɛ* is usually used in a more restricted sense ‘roof’. In Ketama and Zerqet, in description of the location, *ṭalaɛ* ‘above (of)’ is preceded by the Ablative *s* (K), *z(g)i* (Z) ‘from’:

(96) *s ṭalaɛ (n) uẖyam* (K)
(zi) ṭalaɛ (n) uẖyam (Z)
from above of house:EA
‘above the house’

[651] In Hmed, for this construction to be used, it has to be outdoors (‘above him/her in the sky’). Otherwise, the construction *ngaġef n-* is used.

[652] It can also function as a participle ‘going up, ascending’.

[653] In Ketama and Zerqet, the Allative preposition *ar* (K)/*za* (Z) ‘to’ cannot be omitted in this example. In Hmed, it is optional.

With the pronominal forms:

(97) *ḵunni* *s* *ṭalaɛ* *n-sen* (K)
you:PL from above of-3P
aqaˆwen *(zi)* *ṭalaɛ* *n-sen* (Z)
QAˆ2P:DO from above of-3P
'You (PL) are above them.'

9.4.1.6. *agemmaḍ* (K/Z)/*ayemmaḍ* (H) *n* 'the opposite side of'

The noun *agemmaḍ* (K/T/S/Z)/*ayemmaḍ* (H) 'side' is found across Senhaja.[654] It usually refers to the opposite side of a river or a mountain. The noun has a state distinction and has EA *ugemmaḍ* (K/Z), *uyemmaḍ* (H). In Zerqet, two forms with the deictic clitics are used:[655]

- *agemmaḍ*=*a* and *agemmaḍ*=*in* 'that side/the opposite side'.

In Ketama and Hmed, this word always appears with the clitic *an* (K) or *in* (H):

- *agemmaḍ*=*an* (K), *ayemmaḍ*=*in* (H) 'the opposite side'.

Some examples follow.

(98) *agemmaḍ*=*an* *(n)* *uḫyam* *inu* (K)
ayemmaḍ=*in* *(n)* *uḫam* *inu* (H)
agemmaḍ=*in* *(n)* *uḫyam* *inu* (Z)
side =DIST2 of house.EA of:1S
'on the other side of my house', 'opposite my house'

In the following example, the Allative 'to' is optional:

(99) *ẓṛa-n*= *t* *ar* *ugemmaḍ*=*an* (K)~
ẓṛa-n= *t* *agemmaḍ*=*an* (K)
ẓṛa-n= *ṭ* *(za)* *ayemmaḍ*=*in* (H)
ẓṛa-n= *t* *(za)* *agemmaḍ*=*in* (Z)
see:P-3P= 3FS:DO to side=DIST2
'The saw her on the other side.'

Compare the following sentences:

---

[654] Ketama also *igemmaḍ*.

[655] The clitics found with this word do not correspond to the regular postnominal clitics found with other nouns (cf. Section 6.6). The same observation is valid for other Senhaja varieties. Cf. Kossmann 2012: 65 for similar facts in Figuig.

(100) *i-dda* *ar* *uḫyam=* *aḏin* *agemmaḏ=an* (K)
i-dda *zaˆ* *(a)ḫam=* *ddin* *ayemmaḏ=in* (H)
i-ɛḏa *zaˆ* *(a)ḫyam=* *yyen* *agemmaḏ-in* (Z)
3MS-go:P t o house(EA)=DIST side:EA=DIST
'He went to that house on the other side.'

(101) *i-dda* *ar* *ugemmaḏ=an* *n* *uḫyam=aḏin* (K)
i-dda *zaˆ* *(a)yemmaḏ=in* *n* *uḫam=ddin* (H)
i-ɛḏa *zaˆ* *(a)gemmaḏ=in* *n* *uḫyam=yyen* (Z)
3MS-go:P to side(EA)=DIST of house:EA=DIST
'He went to the other side of that house.'

With pronouns:

(102) *i-dda* *ar* *ugemmaḏ=an* *nn-es* (K)
i-dda *zaˆ* *(a)yemmaḏ=in* *nn-es* (H)
i-ɛḏa *zaˆ* *(a)gemmaḏ=in* *nn-es* (Z)
3MS-go:P to side(EA)=DIST of-3S
'He went to the other side of it.'

9.4.2. Locative Expressions with Regular Nouns

This Section presents locative expressions with regular nouns. In this case, nouns follow a preposition and have a state distinction.

Base noun	**Examples**
ammas (K/H/Z) 'middle'	*g wammas n* (K/H), *g ammas n* (Z) 'in the middle of'
lwesṭ (Z) 'center'	*(g)i lwesṭ n* (Z) 'in the middle of'
ṭṭerf (K/H/Z) 'side'	*g ṭṭerf n* (K), *(i) ṭṭerf n* (H), *(gi) ṭṭerf n* (Z) 'beside'
aġezḏis (K/Z) 'side'	*af uġezḏis n* (K), *ḫ uġezḏis n* (Z) 'on the side of'
žžemb/ǧǧemb (K/H/Z) 'side'	*af žžemb n* (K), *ḫ ežžemb n* (H), *ḫ eǧǧemb n* (Z) 'on the side of'

9.4.2.1. *ammas* and *lwesṭ* 'center, middle'

The noun *ammas* 'waist' is used in most Senhaja varieties:

(103) *ammas inu* (K/H/Z)
waist of:1S
'my waist'

This noun has a *voyelle constante*: the EA is *wammas*, e.g.

(104) *n wammas* (K/H/Z)
of waist:EA
'of the waist/middle'

The word *ammas* also has the sense 'center, middle'. In this sense, it is often preceded by *g* 'in' and followed by the Genitive *n* 'of'. In combination with the preposition 'in', we have: *g wammas n* (K), *g^{w} ammas n* (H), *g ammas n* (Z) 'in the middle of'.

In Zerqet, in the sense 'center, middle', the Arabic loan *lwesṭ* is more frequent than *ammas*. In Ketama and Hmed, by contrast, *ammas* is preferred, and *lwesṭ* is considered a code-switching to Arabic. Consider the following examples:

(105) *g wammas n edšaṛ* (K)
g^{w} ammas n edšaṛ (H)
g ammas n edšaṛ ~ (g)i lwesṭ n edšaṛ (Z)
in middle:EA of village ~ in middle of village
'in the middle of the village'

With the pronominal forms:

(106) *ha-w g wammas nn-es* (K)
ha-w g^{w} ammas nn-es (H)
here-3MS in middle(EA) of-3S
aq=eṭ g ammas nn-es (Z)
aq=eṭ gi lwesṭ nn-es (Z)
QA=3MS:DO in middle(EA) of-3S
'He is in the middle of it.'

9.4.2.2. *ṭṭerf, aġezḏis, žžemb* 'side'

There are several nouns in Senhaja that can be translated as 'side'. The noun *ṭṭerf* (an Arabic loan) has several senses: 'piece', 'edge', 'side', e.g.

(107) *ṭṭerf (n) uġrum* (K/H/Z)
side of bread:EA
'piece of bread'

In the sense 'beside', *ṭṭerf* follows the preposition 'in' in Ketama (but only optionally in Hmed/Zerqet) and is followed by the Genitive *n*:

(108) *g* *eṭṭerf* *(n)* *uḫyam* (K)
(i) *ṭṭerf* *(n)* *uḫam* (H)
(gi) *ṭṭerf* *(n)* *uḫyam* (Z)
in side of house:EA
'beside the house', 'next to the house'

(109) *g* *eṭṭerf* *n* *ṭṭabla* (K)
(i) *ṭṭerf* *n* *ṭṭabla* (H)
(gi) *ṭṭerf* *n* *ṭṭabla* (Z)
in side of table
'beside the table'

With pronominal forms:

(110) *g* *eṭṭerf* *inu* (K)
(-) *ṭṭerf* *inu* (H)[656]
(gi) *ṭṭerf* *inu* (Z)
in side of:1S
'beside me, next to me'

The Ablative preposition followed by *ṭṭerf* can be used in its literal meaning, 'from the side/edge', but is also used to mean 'without exception', e.g.

(111) *kulši* *dda-n* *s* *eṭṭerf* (K)
kulši *dda-n* *zi* *ṭṭerf* (H)
kulši *ɛḏa-n* *zgi* *ṭṭerf* (Z)
all go:P-3P from side
'Everybody went without exception.'

The noun *aġezḏis* means 'rib' and by extension, also 'side' in Zerqet and Ketama (only when referring to animate objects), e.g.[657]

(112) *af* *uġezḏis* *nn-es* (K)
ḫ *uġezḏis* *nn-es* (Z)
on rib:EA of-3S
'on his/her side', 'beside him/her'

[656] Does not follow the preposition 'in' in Hmed.

[657] Originally, it is a compound from *iġes* 'bone' and *aɛeddis* 'belly'. In Hmed, *aġezḏis* is not used to refer to 'side'. In Ketama, it is used in free variation with *aḥṣirṭ*.

(113) *Muḥemmeḏ* *aq* = *eṭ* *i-qqim* *ḫ* *uġezḏis* *nn-es* (Z)
Mohammed QA = 3MS:DO 3MS-sit:P on rib:EA of-3S
'Here's Mohammed sitting beside him/her.'

(114) *i-teṭṭeṣ* *af* *uġezḏis* *nn-es* (K)
i-teṭṭeṣ *ḫ* *uġezdis* *nn-es* (Z)
3MS-sleep:I on rib:EA of-3S
'He sleeps on his side.'

The noun *žžemb* (K/H) means 'side'.

(115) *g* *ežžemb* *n* *uḫḫam* (K)
i *žžemb* *n* *uḫam* (H)
in side of house:EA
'at the side of the house'

(116) *i-teṭṭeṣ* *af* *žžemb* *nn-es* (K)
i-ṭeṭṭeṣ *ḫ* *ežžemb* *nn-es* (H)
i-teṭṭeṣ *ḫ* *eğğemb* *nn-es* (Z)
3MS-sleep:I on side of-3S
'He sleeps on his side.'

9.5. Prepositional Interrogatives

9.5.1. The structure of prepositional interrogatives

Prepositional interrogatives are interrogatives that contain a preposition (cf. Section 12.4.4.1 on simple interrogatives, and Section 12.4.4.2 on rules of clitic fronting in prepositional interrogatives in Senhaja).[658] In Ketama, and usually also in Hmed, such interrogatives are composed of the preposition followed by the borrowed Arabic pronoun *mmen* 'what/who' (glossed WH).[659] Prepositional interrogatives, like simple interrogatives, are always followed by the relative marker *a* in Ketama before a relative clause. When combined with the relative marker *a* in fast speech, the final *-en*

[658] On prepositional interrogatives are how they are built in different Berber varieties, see Kossmann 2012a: 90.
[659] As with the borrowed interrogative *škun* 'who/what' in Ketama, the same form is used in the meaning 'who' and 'what', different from Arabic. The same situation is found in Ghomara (Mourigh 2015: 382). See Kossmann 2013a: 304 for a discussion.

of *(m)men* is clipped, e.g. *iḏ emmen a* > *iḏ emmˆa* ‘for WH’, *g emmen a* > *g emmˆa* ‘in WH’.[660] This clipping does not occur in Hmed. In Hmed, alongside the borrowed *mmen* ‘WH’, the native Berber element *mi* can be used with prepositions to form a prepositional interrogative.[661] In this case, unlike with the element *mmen*, the preposition follows the pronoun, e.g. *miyy-es* ‘with WH’ (instrumental). In Zerqet, we usually find the pronominal element *mi* (or *miḏi*, see below), depending on the dialect and the interrogative, while the borrowed *mmen* is rare (sometimes used alongside *miḏi* in the dialect of Lqitun, but not in Ikherruden). With some interrogatives, in Western Zerqet (Ikherruden, Lqitun), the preposition is found on both sides of the pronoun *mi*, e.g. *k-mi-k* ‘with WH’ (comitative), *s-mi-s* ‘with WH’ (instrumental), *ḫ-mi-ḫ* ‘on WH’. In Eastern Zerqet (Wersan), the preposition is found following the pronoun: *mi-k* ‘with WH’, *mi-s* ‘with WH’, etc., while in Central Zerqet (Bunjel), both variants occur, i.e. doubling is optional. With some interrogatives in Ikherruden and Lqitun, the preposition precedes *miḏi*, e.g. *zi miḏi* ‘from WH’.[662] It seems that in this case, *miḏi* became reinterpreted as one morpheme, while originally, it was a combination of *mi* and a preposition: *mi-ḏi* ‘for WH’, homonymous with ‘in WH’. With the preposition *ġu(r)* ‘at’ (French ‘chez’), Zerqet has *mu*: Wersan *mu-ġur*, Ikherruden/Lqitun *ġu-mu-ġur* (alongside *ġu-miḏi*) ‘at whose place/with who?’, cf. also *za (ġu-)mu-ġur* (Ikherruden/ Lqitun also *za ġu-miḏi*) ‘to whose place?’. With some complex prepositions (the ones that include the Genitive *n* ‘of’), the Lqitun dialect of Zerqet employs *miḏi* or *mmen*. In the Ikherruden and Wersan dialects, these complex prepositional interrogatives are not found, and forms with *mmen* are considered Arabic.

9.5.2. A list of prepositional interrogatives

The following table lists prepositional interrogatives in three Senhaja varieties. The last four (complex) interrogatives (with the Genitive *n*) are not used in the Ikherruden dialect of Zerqet, but are found in the Lqitun dialect.

[660] The old generation in Ketama uses the element *ma* in some prepositional interrogatives, e.g. *g ma* ‘in what’. This *ma* may be the same as the pronominal element *mi* found in Hmed and Zerqet prepositional interrogatives, with the final *-a* that is originally a relative marker, i.e. *g m(i)ˆa* ‘in WH RM’. It is not excluded that the forms *g emm(en) a* (with the borrowed element *mmen*) and the native *g mˆa* influenced each other and became conflated, as they are distinguished only by the gemination in *mm*.

[661] The *m* (*mi, ma*) is an ancient element that is often used to form interrogatives across Berber, cf. Kossmann 2012a: 90.

[662] Cf. Bendjaballah *et al*. 2015 for some comparative data. On Wh-clitic-doubling, see El Hankari & Ouhalla 2012.

Prepositional interrogatives in Ketama, Hmed, and Zerqet

Transl.	Forms (free = with a rel. clause)		
WH = who/what	**K**	**H**	**Z**
in WH	g emmen	g emmen/mi-ḏi	gi-mi-ḏi
for WH	iḏ emmen	g emmen/mi-ḏi	gi-mi-ḏi
and/with WH (comit.)	(NP +) iḏ emmen	kiḏ emmen	(k-)mi-k
of WH	n emmen	n emmen	(n miḏi)[663]
with WH (instr.)	s emmen	s emmen/miyy-es	(s-)mi-s
on/about WH	af emmen	ḫ emmen[664]	(ḫ-)mi-ḫ
to WH (Allative)	ar emmen	zr emmen	(z miḏi)
at ('chez') WH	ġuḏ emmen	ġur emmen	(ġu-)mu-ġur, ġu-miḏi
to ('chez') WH	(ġuḏ emmen)	za ġur emmen	za (ġu-)mu-ġur, za ġu-miḏi
from WH (from whose place)	s (ġuḏ) emmen	z(i)g emmen, zi ġur emmen	z (ġu-)mu-ġur, z(g)i (ġu) miḏi
under WH	g ezdu n emmen	zidu men[665]	(taḥt n miḏi/mmen)
above WH	g esni n emmen	ngaġf (n) mmen	(fuq n miḏi/mmen)
before WH	qbel n emmen	qbel (n) mmen	(qbel n miḏi/mmen)
after WH	ffir n emmen	ffir (n) mmen	(ffir n miḏi/mmen)

As follows from the table, the prepositional interrogative 'for who/what' is homonymous with 'in who/what' in Hmed and Zerqet, but distinguished in Ketama. In Ketama, on the other hand, the interrogative 'with who/and who?' is homonymous with 'for who?', while the question 'with who?' (comitative) is distinguished in Hmed and Zerqet. In Ketama, *iḏ emmen* can be interpreted as 'for who?' and 'and who?', but the constructions are different (Cf. Section 12.4.4.2 for examples with a following relative clause). The interrogative *iḏ emmen* 'for who?' can start the sentence, while *iḏ emmen* 'with/and who?' cannot (it must follow an NP), e.g.

(117) *netta iḏ emmen* (K)
he and WH
'With who?', lit. 'He and who?'

[663] Cf. Section 9.6.2 for an alternative construction with the verb 'to own', also possible in Ketama.
[664] Also 'why?'
[665] In *zidu men* ~ *zidu mmen*, gemination in *m* is rare, but possible.

(118) *iḏ emmen (*K)
and WH
(Intended: 'With who?').

In Hmed, for 'why', both the prepositional interrogative *ḥ emmen* (lit. 'on what') and the borrowed *ɛlaš* are used. Ketama uses the interrogative *i men*. The exact origin of the initial *i* in this construction is uncertain, but it coincides with the Dative preposition *i (~iḏ)*, although the interrogative 'for who?' is *iḏ emmen*, distinguished from *i men* 'why?'.

9.6. Possessive Predicates and Possessive Interrogatives

Possession can be expressed with the Genitive preposition *n* 'of' or with the preposition *ġur* 'at'. On the negation of these prepositional predicates, see Section 9.7.2.

9.6.1. Possessive Predicates

9.6.1.1. Possessive Predicate with the Genitive Preposition *n* 'of'

The possessive Genitive construction consists of the Subject + the Genitive *n* 'of' + the predicate, e.g.

(119) *ṣṣak=aḏ n Muḥemmeḏ* (K)
ṣṣak=yya n Muḥemmeḏ (Z)
bag=PROX of Mohammed
'This bag is Mohammed's.'

The following example is with the pronominal form:

(120) *waḏ inu* (K)
waḏa ynu (Z)
this:MS of:1S
'This is mine.'

9.6.1.2. Possessive Predicate with the Preposition *ġur* 'at'

The preposition *ġur* 'at' can express possession.[666] In this case, the syntax is special: if the possessor is lexically expressed, it must be in a topic position (preceding *ġur*). For example:

(121) *Muḥemmeḏ ġur-es ddrari* (pan-Snh.)
Mohammed at-3S children
'Mohammed has children.'

When reference is made to the past or to the future, the *ġur* construction is used in combination with a form of the verb 'to be'. The Aorist (following the future marker *š-a*) is used to refer to the future, and the Perfective (following the past marker) is used to refer to the past. In some varieties (Taghzut, Seddat, Zerqet), to make the reference to the past, it is possible to have the past marker with *ġur-* 'at' without the following verb 'to be', e.g.

(122) *ğğa ġur-es iḫeddamen* (S)
PST at-3S workers
'(S)he had workers.'

In Zerqet, when the verb 'to be' is present, the agreement is usually with the possessed object. In Ketama and Hmed, the verb 'to be' in *ġur*-constructions can agree either with the possessor or with the possessed object (in the third person), or have a petrified (impersonal) form. When the possessed object is feminine plural, additionally, the verb 'to be' can be in 3FS (alongside 3MS, 3P, and Ø agreement). Agreement with the possessor follows the same pattern. Schematically:

Possessed	**Agreement in 'to be'**	**Possessor**	**Agreement in 'to be'**
MS	3MS/Ø	MS	3MS/Ø
FS	3FS/3MS/Ø	FS	3FS/3MS/Ø
(M)P	3P/3MS/Ø	(M)P	3P/3MS/Ø
FP	3FS/3P/3MS/Ø	FP	3FS/3P/3MS/Ø

[666] The Arabic equivalent of *ġur*, *ɛend-* is borrowed in Senhaja and is used in the specialized meaning 'look out' (in warnings). It normally takes Arabic suffix pronouns (cf. Section 8.6.2).

There are two possible explanations for this choice in agreement. First, the agreement may be simply (freely) fluctuant, as in the local Arabic.[667] Alternatively, the agreement is not fixed because of the contamination with the old Berber verb *(e)l* 'to have/possess/own' (e.g. *i-la* 'he has'), which became conflated with *ili* 'to be' (e.g. *i-lla* 'he is/was').[668] In the following example, (*a*) demonstrates that the verb can agree with the possessor. In *(b)*, the verb agrees with the possessed object, while in *c*, there is no agreement either with the possessed object or the possessor:

(123)	(a)	*Dunya*	*ara*	*h-ella*	*ġur-es*	*iḫeddamen* (K)
		Dunia	PST	3FS-be:P	at-3S	workers
	(b)	*Dunya*	*ara*	*lla-n*	*ġur-es*	*iḫeddamen* (K)
		Dunia	PST	be:P-3P	at-3S	workers
	(c)	*Dunya*	*ara*	*y-lla*	*ġur-es*	*iḫeddamen* (K)
		Dunia	PST	3MS-be:P	at-3S	workers
		'Dunia had workers.'				

9.6.2. Possessive Interrogative

As follows from the list of prepositional interrogatives presented in Section 9.5.2, there are different ways to form a possessive interrogative in Senhaja, e.g. based on the Genitive preposition *n* 'of', or based on the preposition *ġur* 'at'. With the preposition *ġur* 'at', Ketama uses *ġuḏ emmen*, Hmed *ġur emmen*, and Zerqet *mu-ġur* (Wersan), *ġu-mu-ġur* (Ikherruden/Lqitun, alongside *ġu-miḏi*) 'at whose place?', 'with who', 'who has?'. With the Genitive *n*, Ketama and Hmed use the interrogative *n emmen* 'of who/what?', 'whose?', e.g.

(124)	*n*	*emmen*	*waḏ?* (K)
	n	*emmen*	*wadda?* (H)
	of	WH	PROX:MS
	'Whose is this?'		

In Zerqet, *n miḏi* 'of who?' is used in the Lqitun dialect, but has not been found in Ikherruden, which uses a different construction (based on the old verb 'to possess' mentioned above), which is also found in Lqitun:

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[667] Cf. https://academia.li/gutova/possessive-agreement-senhaja.

[668] The verb 'to possess' is not common in northern Morocco. Nevertheless, it is still found in Senhaja (as well as in Tarifiyt) in some constructions (cf. Section 9.6.2).

(125) *mˆ* *i-la* *waḏa?* (Z)
WH 3MS-own:P PROX:MS
'Whose is this?', lit. 'Who owns this?'

In Ketama, there is a cognate verb 'to own, possess' (with the regular *l* > *y*), which only occurs in the following construction:[669]

(126) *mˆ* *a* *h=* *i-ya-n* *waḏ?* (K)
WH RM 3MS:DO= RF-own:P-RF PROX:MS
'Whose is this?', lit. 'Who owns this?'

In this case, both in Ketama and Zerqet, the initial pronominal element is *m*. The final vowel of the pronominal element coalesces with the following vowel (the *i-* of the 3MS subject prefix in Zerqet, and the relative *a* in Ketama).

Compare also the following examples illustrating different types of possessive interrogatives in Senhaja:

(127) (a) *n emmen ḵem arbaṯ?* (K)
n emmen ḵemmini ṯarbaṯ? (H)
of WH you:FS girl:EL
(b) *mˆ* *a* *m=* *i-ya-n* *arbaṯ?* (K)
WH RM 2FS:DO= RF-own:P-RF girl:EL
(c) *mˆ* *i-la* *ḵem* *ṯarbaṯ?* (Z)
WH 3MS-own:P you:FS girl:EL
'Whose daughter are you (FS)?'

9.7. Negation of the Prepositional Predicate

Prepositional predicates are similar to other non-verbal predicates in the mechanisms of negation they use (cf. Section 6.1.2.2 on the negation of the nominal predicate and Section 7.6 on the negation of the adjectival or participial predicate). The usual ways to negate a (non-pronominalized) prepositional predicate are: a) by means of the negated form of the verb 'to be', and b) by means of the single negator *maši*. Most prepositional predicates do not take the discontinuous negation *ma...š* or *u...š*, unless they are pronominalized.[670] Pronominalized prepositional predicates are special in that

[669] A finite verb form is used in Zerqet, and a relative form in Ketama following the relative marker *a*, with a fronted pronominal clitic referring to the possessed object. Cf. Section 12.4.4 on clitic fronting in interrogatives.

[670] In this regard, Senhaja is different from Ghomara (Mourigh 2015: 295-296).

they can take the discontinuous negation *u...š*, as well as the discontinuous negation *u...bu* (where *bu* is always followed by a noun, cf. Section 9.7.3). The Genitive preposition *n* 'of' is optional following the discontinuous negation *u* + (preposition + pronominal suffix) + *š* before the lexical complement.

9.7.1. Regular vs. Pronominalized Prepositional Predicates

9.7.1.1. The Negation of Non-pronominalized Prepositional Predicates

Non-pronominalized prepositional predicates (such as the locative 'at home') are usually negated: a) by means of the verb 'to be', or b) by means of *maši*. For example:

(128) (a) *u* *y-ella* *š* *g* *uḫḫam* (K)
NEG 3MS-be:P NEG in house:EA
(b) *netta* *maši* *g* *uḫḫam* (K)
he NEG in house:EA
'He is not at home.'

Additionally, the negation by means of *uliš, u šay* (Taghzut) and *ṛa-* (Hmed) is also possible:

(129) (a) *neṭṭa* *uliš* *g* *eḫyam* (T)
he NEG in house:EA
neṭṭa *u* *šay* *g* *eḫyam* (T)
he NEG NEG in house:EA
(b) *ma* *ṛa-h* *š* *g*^{w} *eḫḫam* (H)
u *ṛa-h* *š* *g*^{w} *eḫḫam* (H)
NEG PRS-3MS NEG in house:EA
'He is not at home.'

Another way to negate a locative prepositional predicate is by means of the negated form of the existential participle *kayen*. This is different from other types of prepositional predicates (and other types of non-verbal predicates):

(130) *netta* *ma* *kayen* *š* *g* *uḫḫam* (K)
netta *ma* *kayen* *š* *g* *eḫyam* (T/Z)
neṭṭa *ma* *kayen* *š* *g*^{w} *eḫḫam* (H)
he NEG EXST:MS NEG in house:EA
'He is not at home.'

Examples with non-locative prepositional predicates follow:

(131) (a) *Muḥemmeḏ u ḏ-ella š s ṯammarṯ* (H)
Mohammed NEG 3MS-be:P NEG with beard:EA
(b) *Muḥemmeḏ maši s ṯammarṯ* (H)
Mohammed NEG with beard:EA
(c) *Muḥemmeḏ ma ṛa-h š s ṯammarṯ* (H)
Mohammed NEG PRS-3MS NEG with beard:EA
'Mohammed doesn't have a beard.'

9.7.1.2. Negation of Pronominalized Prepositional Predicates

Pronominalized prepositional predicates can be negated using the same strategies as non-pronominalized prepositional predicates (viz. the use of 'to be' and *maši*), e.g.

(132) (a) *u ḏe-lla š kiḏ-i* (H)
NEG 3MS-be:P NEG with-1S
(b) *neṭṭa maši kiḏ-i* (H)
he NEG with-1S
'He is not with me.'

Additionally, some pronominalized prepositional predicates can be negated by the discontinuous negation *u...š*.[671] There are differences depending on the preposition and the variety. The following example is from Hmed:

(133) *neṭṭa u kiḏ-es š* (H)
she NEG with-3S NEG
'She is not with him.'

In Zerqet, the phrase *u kiḏ-es š* is usually understood as '(something) is not with him', 'he does not have (something with him now)', e.g.

(134) *u kiḏ-es š leflus* (Z)
NEG with-3S NEG money
'He doesn't have money (with him now)', lit. 'Money is not with him.'

Similarly, in Ketama and Taghzut, *u yḏ-es š* 'not with him' is used in such contexts:

[671] The discontinuous negation by means of *ma...š* is only marginally possible (parts of Ketama and parts of Hmed) and is considered an Arabism by most Senhaja speakers.

(135) *u* *yiḏ-es* *š(i)* *leflus* (K/T)
NEG with-3S NEG money
'He doesn't have money (with him now)', lit. 'Money is not with him.'

However, it is more natural to negate the form 'with him' by means of the negated form of 'to be' in Ketama and Taghzut. This negation strategy is also used in Hmed:

(136) *u* *lla-n* *š* *iḏ-es* *leflus* (K/T)
NEG be:P-3P NEG with-3S money
'He doesn't have money with him.' ('Money is not with him.')

Consider also the following examples with pronominalized prepositions:

(137) *u* *gig-i* *š* *žžuɛ* (K)
u *ḏiyy-i* *š* *ǧǧuɛ* (Z)
NEG in-1S NEG hunger
'I am not hungry.' (Lit. 'In me there is no hunger.')

(138) *u* *gig-es* *š* *askuḥ* (K)
u *ḏiyy-es* *š* *ṭusuṭ* (H/Z)
NEG in-3S NEG cough:EL
'He/She is not coughing.' (Lit. 'In him/her there is no cough.')

9.7.2. Negation of the Prepositions *n* 'of' and *ġur* 'at'

9.7.2.1. Negation of the Genitive preposition *n* 'of'

The Genitive preposition *n* 'of' can be negated by means of the verb 'to be' or the negator *maši*, as well as by the strategies specific to Taghzut (*uliš, u šay*) and Hmed (*ṛa*):

(139) (a) *aḫyam=aḏ* *u* *y-ella* *š* *n* *Muḥemmeḏ* (K)
house=PROX NEG 3MS-be:P NEG of Mohammed

(b) *aḫyam=aḏ* *maši* *n* *Muḥemmeḏ* (K)
house=PROX NEG of Mohammed

(c) *aḫyam=aḏi* *uliš* *n* *Muḥemmeḏ* (T)
house=PROX:SG NEG of Mohammed

(d) *aḫyam=aḏi* *u* *šay* *n Muḥemmeḏ* (T)
house=PROX:SG NEG NEG of Mohammed

(e) *aḫam=dda* *ma* *ṛa-h* *š* *n Muḥemmeḏ* (H)
house=PROX:SG NEG PRS-3MS NEG of Mohammed
'This house is not Mohammed's.'

The same strategies are used with the pronominalized forms, e.g.

(140) (a) *u lla-n š nn-es* (K/T/H)
NEG be:P-3P NEG of-3S
'They are not his/hers.'

(b) *maši nn-es* (K/T/H/Z)
NEG of-3S

(c) *uliš nn-es* (T)
NEG of-3S

(d) *u šay nn-es* (T)
NEG NEG of-3S

(e) *ma ṛa-h š nn-es* (H)
NEG PRS-3MS NEG of-3S
'It is not his/hers.'

The discontinuous negation is not accepted with this preposition.

9.7.2.2. Negation of the preposition *ġu(r)* 'at'

The preposition *ġu/ġuḏ/ġur* 'at' is special in that it can express possession and has a special syntax (cf. Section 9.6.1.2). It is negated by the usual strategies – the negated form of the verb 'to be' or by the single negator *maši*, or by the additional means used in Taghzut (*uliš, u šay*) and Hmed (*ṛa-*):

(141) (a) *ṣṣak nn-eḵ u y-ella š ġu Muḥemmeḏ* (K)
bag of-2MS NEG 3MS-be:P NEG at Mohammed

(b) *ṣṣak nn-eḵ maši ġu Muḥemmeḏ* (K/T/H, rare in Z)
bag of-2MS NEG at Mohammed

(c) *ṣṣak nn-eḵ uliš ġu Muḥemmeḏ* (T)
bag of-2MS NEG at Mohammed

(d) *ṣṣak nn-eḵ u šay ġu Muḥemmeḏ* (T)
bag of-2MS NEG NEG at Mohammed

(e) *ṣṣak nn-eḵ ma ṛa-h š ġu Muḥemmeḏ* (H)
bag of-2MS NEG PRS-3MS NEG at Mohammed
'Your bag is not at Mohammed's (place).'

The preposition *ġur-* with pronominal suffixes can also be negated by the discontinuous *u...š* (also in those varieties that do not accept this type of negation with other prepositional predicates such as 'with', as e.g. Ketama). Also, in some parts of

Senhaja (parts of Ketama and Hmed), the Arabic discontinuous negation *ma...š(i)* can be accepted with this prepositional predicate. This variant is considered an Arabism by the speakers, but is used nevertheless. Below follow examples:

(142) (a) *u* *y-ella* *š* *ġur-es* (K)
u *ḏ-ella* *š* *ġur-es* (H/T)
NEG 3MS-be:P NEG at-3S
(b) *maši* *ġur-es* (H)
NEG at-3S
(c) *u* *ġur-es* *š* (K/T/H/Z)
NEG at-3S NEG
(d) *ma* *ġur-es* *š* (parts of K/H)
NEG at-3S NEG
(e) *ma* *ṛa-h* *š* *ġur-es* (H)
NEG PRS-3MS NEG at-3S
'He does not have (it).', 'It is not with him.'

As usual, the negator *maši* extends the scope of negation to the entire clause. The variant *(b)* (*maši ġur-es*) implies '(something) is not with him, but with someone else'. The variant *(c)* is the usual negation of the possessive construction. When the negator *maši* is followed by *u ġur-es* š, this has the meaning 'It is not that he has no...', e.g.

(143) *maši* *u* *ġur-es* *š* *aḫyam* (K/T/Z)
NEG NEG at-3S NEG house:EL
'It is not that he doesn't have a house.'

Following the negative *u ġur*-(suffix) *š*, the Genitive preposition *n* is optional before the lexican complement (the possessed object), e.g.

(144) *Muḥemmeḏ* *u* *ġur-es* *š* *(n)* *ddrari* (K/T/H/Z)
Mohammed NEG at-3S NEG (of) children
'Mohammed doesn't have children.'

9.7.3. Negation with *u... bu*

The discontinuous negation *u... bu* is especially frequent with pronominalized prepositional predicates, although it can occur in other contexts, as well (cf. Section

5.6.3.2).[672] The second negator *bu* is always followed by a noun that is an object complement. The noun is in EL.[673] The negation by means of *u… bu* is more frequent in Eastern Senhaja than in Western varieties, and is more frequent in Tarifiyt than in Senhaja, although it is found across Senhaja. The negator *bu* cannot co-occur with *š/ši/šay* in most varieties, although the two can co-occur in Hmed. Some examples follow. The negation with *bu* is most frequently found with the preposition *ġur-* (with pronominal suffixes), e.g.

(145) (a) *Muḥemmeḏ u ġur-es bu ṯamġarṯ* (H/Z)
Muḥemmeḏ u ġur-es bu amġarṯ (K)
Mohammed NEG at-3S NEG wife:EL
(b) *Muḥemmeḏ u ġur-es š bu ṯamġarṯ* (H, *K, *Z)
Mohammed NEG at-3S NEG NEG wife:EL
'Mohammed doesn't have a wife.', 'Mohammed has no wife.'

Examples with other pronominalized prepositions follow:

(146) *u kiḏ-i bu lwaqt* (Z)
NEG with-1S NEG time
'I have no time.'

(147) *u gig-i bu ddɛawi* (K)
NEG in-1S NEG misbehavior
Lit. 'In me there is no misbehavior', i.e. 'I am not misbehaving.'

9.8. Conclusions

Prepositions serve to indicate the function of a noun or a pronoun that follow them in relation to the predicate. Nouns following most prepositions are in the EA, while some prepositions take nouns in EL. Prepositional phrases can function as predicates. In Senhaja, prepositions can be simple or complex. Simple prepositions consist of a single element and can be divided into groups according to the state of the noun that follows:

1) most prepositions take the noun in EA, e.g. the Genitive *n* 'of' (*n urgaz* (K), *n uryaz* (H/Z) 'of the man'); *s* 'with' (instrumental) (*s ufus* 'with the hand');
2) prepositions ending in *-g* (T/Z) ~*g*^{w} (H): the following masculine singular nouns have a special form of EA (EA2) lacking the initial full vowel. This is

[672] On the negator *bu*, see Lafkioui 1996, 1999 (Chapter 2), 2007a: 234-236, 2013a, and 2013b. According to Lafkioui (2013b: 116), *bu* is used for existential descriptive negation.
[673] In Taghzut, EA is also permitted (in free variation with EL).

found in Taghzut, Hmed, Zerqet, e.g. the Locative *g*^{w} (H)/*g* (T/Z) ‘in’, e.g. *g*^{w} *eḫḫam* (H), *g eḫyam* (T/Z) ‘in the house’; the homophonous Dative *g*^{w} (H)/*g* (Z) ‘for’; and the Ablative *zig*^{w} (H)/*zeg* (T/Z) ‘from’. Feminine nouns take the regular EA;

3) prepositions that take nouns in EL (e.g. *anda* ‘like’), sometimes in free variation with EA, e.g. *bla yaryaz* (H/Z) ~ *bla weryaz* (H/Z) ‘without a man’.

There are dialectal differences. Following some prepositions, the state of the noun is linked to the gender, as in the case of the Allative *za* ‘to’ (H/Z): *zaˆ(a)rrar* ‘to the threshing floor’ (EL, masculine noun) vs. *za ṯḥanuṭ* (H), *za ṯḥanut* (Z) (EA, feminine noun) ‘to the shop’.

Many prepositions have two forms, one (usually a shorter one) used before nouns and the other one (usually a longer one) used with pronominal suffixes, e.g. *s ufus* ‘with the hand’ (instrumental) > *sgig-es* ‘with it’ (K). Some prepositions do not take pronominal suffixes, but instead are followed by independent pronouns, e.g. *anda Muḥemmeḏ* ‘like Mohammed’, *anda netta* ‘like he’ (K).

Complex prepositions take the Genitive *n*, and the following noun is in EA, e.g. *g esni n uḫyam* (K) ‘on top of the house’. Some prepositions can be combined, e.g. *za ġu ṯḥanuṭ* (H) ‘to the shop’ (lit. “to at the shop”), *ḥetta zaˆ(a)ḫyam* (Z) ‘until the house’ (lit. “until to the house”).

Prepositions can be combined with the pronominal elements *mmen* (<Ar., Ketama/Hmed/parts of Zerqet) or the Berber *mi* (H/Z), *miḏi* (Z) ‘what/who’ to form prepositional interrogatives. With *mmen*, the prepositions precede the pronoun. With *mi*, the prepositions follow the pronoun in Hmed and Eastern Zerqet (Wersan), and appear on both sides of the pronoun in Western Zerqet (Ikherruden, Lqitun), e.g. *s emmen* (K/H), *miyy-es* (H), *mi-s* (Eastern Z), *s-mi-s* (Western Z) ‘with what’ (instrumental).

Possession can be expressed with the Genitive *n* ‘of’ or with *ġur* ‘at’. The syntax with *ġur* in possessives is special: if the possessor is lexically expressed, it must be in a topic position (preceding *ġur*), e.g. *Muḥemmeḏ ġur-es ddrari* (Mohammed at-3S children) ‘Mohammed has children.’ When reference is made to the past or to the future, the *ġur* construction is used in combination with a form of the verb ‘to be’. In Ketama and Hmed, the verb ‘to be’ in *ġur*-constructions can agree either with the possessor or with the possessed object, or have a petrified (impersonal) form. Possessive interrogatives

can likewise be based on *n* ‘of’ or *ġur* ‘at’. Alternatively, an old construction based on the verb ‘to own, to possess’ is used.

Prepositional predicates are similar to the nominal predicates in the mechanisms of negation they use. The usual ways to negate a (non-pronominalized) prepositional predicate are: 1) by means of the negated form of the verb ‘to be’, or 2) by means of the negator *maši*. Additionally, the negation by means of *uliš, u šay* (Taghzut) and *ṛa-* (Hmed) is possible. Pronominalized prepositional predicates can be negated in the same way as non-pronominalized predicates, but can also take the discontinuous negation *u…š* (depending on the preposition and the variety), e.g. *neṭṭa u kiḍ-es š* (H) (she NEG with-3S NEG) ‘She is not with him/her’, *u ġur-es š* (NEG at-3S NEG) ‘(S)he does not have’. The discontinuous negation *u… bu* is found with pronominalized prepositional predicates, although it can also occur in other contexts. The second negator *bu* is always followed by a noun that is an object complement.

Some prepositions originated from nouns and preserve nominal characteristics. A few Arabic borrowed prepositions can take Arabic pronominal suffixes. This is marginal in Senhaja, and examples are limited to fixed expressions borrowed from Arabic.

10. Numerals

10.1. Introduction

Senhaja distinguishes between cardinal (Section 10.2) and ordinal (Section 10.3) numerals. Collective numerals are discussed in Section 10.4. All numerals except for 'one' are borrowed from Arabic.[674] On the numeral 'one', see below. Numerals are normally followed by the Genitive preposition *n* that links them to the following noun, which can undergo assimilation before vowels (cf. Section 2.4.1.3). Different from Hmed and Zerqet, in Ketama, the Genitive *n* can be absent also with feminine nouns (which are V-initial in Ketama). Nouns that mark the state are in EA, e.g.

(1) *tlaṭa n irgazen* ~ *tlaṭa yrgazen* (K)
tlaṭa n iryazen ~ *tlaṭa yryazen* (H/Z)
three of men ~ three men
'three men'

(2) *žuž (n) iẓ̣ran* (K/H/Z)
two of stones
'two stones'

(3) *žuž (n) emġarin* (K)
žuž n ṯemġarin (H)
žuž n temġarin (Z)
two of women:EA
'two women'

10.2. Cardinal Numerals

The following table lists the cardinal numerals in Senhaja. The numerals are basically the same across Senhaja.[675] Starting from the number *waḥeḏ u ɛišrin* 'twenty-one' (lit. 'one and twenty'), the coordinator *u* is used to link the tens and units. In 'hundred and one', the order is as in English: *mya w waḥeḏ* (lit. 'hundred and one').

Although the (dialectal) numeral 'two' is *žuž*, in 'twenty-two', 'thirty-two', etc., the form *tnayn*~*ṯnayn* ('two') is used instead, e.g.

[674] Senhaja is not unique in this regard, as many other Berber varieties have borrowed Arabic numerals. On Ghomara, cf. Mourigh 2015: 245. On the typology of number borrowing in Berber, see Souag 2007.
[675] Some variation is observed in the pronunciation of some numerals, e.g. Taghzut/Hmed *ṭ* vs *t* in the rest of Senhaja.

- 22: *tnayn u ɛišrin ~ ṯnayn u ɛišrin ~ tnin u ɛišrin* (lit. ‘two and twenty’).

There are some dual forms that take the suffix *-ayn* (cf. Section 6.3.4.3), e.g.

- 200: *mitayn~miṯayn~myatayn~myaṭayn*;
- 2000: *alfayn*

Numerals in Senhaja

1	*waḥeḏ~waḥet~waḥiṯ*	60	*settin, seṭṭin* (T)
2	*žuž~žžuž*	70	*sebɛin*
3	*tlaṭa~tlata*	80	*tman(y)in~ṯmanyin, ṭmanyin* (T)
4	*ṛebɛa*	90	*tsɛin*
5	*ḫemsa*	100	*mya*
6	*setta, sseṭṭa* (T/H)	101	*mya w waḥeḏ*
7	*sebɛa, seḇɛa* (T/H)	102	*mya w žuž*
8	*tmenya~ṯmenya, ṭmenya* (T)	200	*mitayn~miṯayn~myatayn, myaṭayn* (T)
9	*tesɛuḏ*	300	*teltemya, telṭemya* (T)
10	*ɛašra*	400	*aṛbɛemya*
11	*ḥḏaš~ḥḍaš*	500	*ḫemsemya*
12	*tnaš*	600	*settemya, seṭṭemya* (T)
13	*tleṭṭaš~ṯleṭṭaš, ṭelṭṭaš* (T)	700	*sebɛemya*
14	*ṛbeɛṭaš*	800	*temnemya, ṭemnemya* (T)
15	*ḫemsṭaš*	900	*tesɛemya, ṭesɛemya* (T)
16	*sseṭṭaš*	1000	*alef*
17	*sbeɛṭaš*	1100	*alef u mya~ḥḏašer mya*[676]
18	*tmenṭaš, ṭmenṭaš* (T)	2000	*alfayn*
19	*tseɛṭaš*	3000	*teltalaf~telṭalaf* (T)
20	*ɛišrin*	10,000	*ɛašralaf (ɛašraˆ(a)laf)*
21	*waḥeḏ u ɛišrin*	11,000	*ḥḏašer alef*
22	*tnayn u ɛišrin~ṯnayn u ɛišrin ~tnin u ɛišrin*	million	*melyun (menyul)*[677]
30	*tlatin~ṯlaṭin*	2 million	*žuž (lˆ)lemlayn* (*žuž n lemnayel*)
40	*aṛebɛin*	billion	*melyaṛ*
50	*ḫemsin*	2 billion	*žuž (lˆ)lemlyaṛ*

[676] The form *ḥḏašer mya* (lit. ‘eleven hundred’) is used e.g. when counting money.

[677] *menyul* is used by the older people.

10.2.1. The Numeral ‘one’

For the number ‘one’, the borrowed numeral (mainly used in counting) coexists with the native one. The native numeral (that has different realizations in different Senhaja varieties) can be used in combination with a noun or independently. When used with a noun, the numeral usually precedes them, but can also follow them. When preceding the noun, ‘one’ can function as an indefinite marker. The gender is distinguished across Senhaja when the numeral is used independently. In Ketama and Taghzut, the numeral is optionally marked for gender when it is followed by a noun: masculine *yan* vs. feminine *yaṯ*, alongside the invariable *yan*.[678] In Hmed, Zerqet, Mezduy, and parts of Bunsar (e.g. Amaktan), the prenominal numeral is always *un*, and in Seddat and parts of Bunsar (e.g. Tamadit), it is always *igʷen*.

The borrowed Arabic numeral for ‘one’ (used in Western Senhaja outside the context of counting) can also be optionally marked for gender, both when used in combination with a noun or independently: masculine *waḥed*, vs. feminine/common *waḥiṯ* ~ *waḥda*. Other numerals do not mark gender. We first discuss the numeral ‘one’ in combination with nouns, followed by the independent use.

10.2.1.1. Numeral ‘one’ with a Noun

When combined with a noun, the numeral ‘one’ can appear before a noun, after a noun, or on both sides of the noun. In combination with a noun, the numeral of Berber origin is normally used in most Senhaja varieties. In Ketama and Taghzut, however, either the Berber or the Arabic numeral for ‘one’ can be used with nouns: the Berber numeral precedes the noun, and the Arabic numeral follows it, e.g.

(4) *yan urba* ~ *arba* *waḥed* (K/T)
one boy:EA ~ boy:EL one
‘a/one boy’ ~ ‘one (a single) boy’

In other Senhaja varieties, only the Berber numerals for ‘one’ are used with nouns, in both prenominal and postnominal positions. When the numeral follows the noun, it is usually preceded by the predicative *ḏ* in varieties where *ḏ* is used. Constructions with postnominal numerals are marked and rare in most Senhaja varieties, and nearly absent in Easternmost Senhaja.

[678] The gender in prenominal numerals is usually not distinguished with Arabic-morphology nouns. One could posit that the Ketama and Taghzut *yan* should be analyzed as *ya* + the Genitive *n*. However, since *yan* also exists as an independent form, we regard *-n* as part of the stem. Nevertheless, it is difficult to distinguish the single numeral *yan* from the underlying *yan* + *n*. The same applies to *un* found in Eastern Senhaja.

(5) *un urba ~ arba (ḏ) iwwen* (B/Z)
un urḇa ~ arḇa (ḏ) igʷen (H)
one boy:EA ~ boy:EL PRED one
'a/one boy' ~ 'one (a single) boy'

1) Prenominal position: NUM + NOUN

The following table lists the forms of the numeral 'one' when followed by a noun.

	K	T	S/B	H/B/Z/M
M	ya(h)n~ya	ya(n)	igʷen	un
F	yaṯ~ya(h)n~ya(n)	yaṯ~ya(n)	igʷen	un

Some examples follow.

	K/T	S/B	H/B/Z/M	Transl.
M	yan urgaz~ya wergaz	igʷen urgaz (S), igʷen uryaz (B)	un uryaz	one man
F	yatˆemġarṯ~yan ṯemġarṯ (K), yaṭˆ(ṭ)meṭṭuṯ~yan ṯmeṭṭuṯ (T)[679]	igʷen temġarṯ	un ṯemġarṯ un demġarṯ (M)	one woman
M	yan sstilu	igʷen sstilu	un sstilu	one pen
F	yan ssimana	igʷen ssimana	un ssimana	one week

The Berber numeral 'one' preceding the noun can function as an indefinite marker. As an indefinite marker, it can precede other numerals in the sense 'some', 'about', 'approximately' (synonym of *ši*), e.g.

(6) *ġur-es ya(h)n žuž (n) iḫčiwen mezzi-n* (K)
ġur-es yan žuž n eddrari mezzi-n (K/T)
ġur-es un žuž n eddrari mečči̱k-en (H)
ġur-es un žuž n eddrari mezziy-en (B) ~ *meẓẓiy-en* (Z) (B/Z)
at-3S one two of children small-PL ~ small-PL
'He has (some) two boys.'

(7) *awy= ay= d yan žuž kilu n maṭiša* (K/T)
awy= ay= d un žuž kilu n maṭiša (H/B/Z)
give:IMP:SG= 1S:IO= VC one two kilo of tomatoes
'Give me about two kilos of tomatoes.'

[679] The variant *yan ṯmeṭṭuṯ* is preferred in Lqela, and *yaṭˆ(ṭ)meṭṭuṯ* in Beni Khlef.

In Taghzut and Hmed, the numeral one (Taghzut *yan*, Hmed *un*) as an indefinite marker can be followed by a noun in plural. This is ungrammatical in the rest of Senhaja, although in Bunsar, collectives can appear in such constructions, e.g.

(8) *yan* *irgazen* (T)
un *iryazen* (H)
one men
'some men'

(9) *yatˆ (t)emṭṭuṯin* (T)
un *ṯemġarin* (H)
one women
'some women'

(10) *yan* *ddrari* (T)
un *ddrari* (H)
igʷen *ddrari* (B-Tamadit)
one children
'some boys'

(11) *yan* *medden* (T)
un *medden* (H)
igʷen *medden* (B-Tamadit)
one people
'some people'

2) Postnominal position: NOUN + NUM

In the postnominal position, the numeral is mainly used for emphasis ('a single X', 'only one X'), and cannot be interpreted as an indefinite marker. Gender is differentiated in postnominal position in most varieties; this is optional in Ketama and Taghzut.

	K/T	**S/B/H**	**B/Z**
M	waḥed~waḥiṯ(~waḥda)	igʷen	iwwen
F	waḥda~waḥiṯ	igʷeṯ	iwweṯ

Outside Ketama and Taghzut, the postnominal numeral is usually preceded by the predicative particle *d* (cf. Section 6.1.2). Some examples follow:

	K/T	S/H/B	B/Z	Transl.
M	argaz waḥed/waḥiṯ /waḥda	argaz (ḏ) igʷen (S) aryaz (ḏ) igʷen (H/B)	aryaz (ḏ) iwwen	one man
F	amġarṯ waḥda/waḥiṯ (K) ṯameṭṭuṯ waḥda/waḥiṯ (T)	ṯamġarṯ (ḏ) igʷeṯ	ṯamġarṯ (ḏ) iwweṯ	one woman
M	sstilu waḥed/waḥiṯ/ waḥda	sstilu (ḏ) igʷen	sstilu (ḏ) iwwen	one pen
F	ssimana waḥda/waḥiṯ	ssimana (ḏ) igʷeṯ	ssimana (ḏ) iwweṯ	one week

3) Numeral ‘one’ on both sides of the noun

In some varieties, the numeral can occur on both sides of the noun. In Ketama and Taghzut, the postnominal numeral is a borrowing from Arabic. In the rest of Senhaja where this construction occurs (Bunsar, Zerqet), the postnominal numeral is of Berber origin (preceded by the predicative *ḏ*), but this construction is rare. This construction is not used in Hmed. For example:

	Ketama/Taghzut	Zerqet	Translation
M	ya werba waḥiṯ~waḥda, yan urba waḥiṯ~waḥda	un urba ḏ iwwen	one/a single boy
F	yan ṯerbaṯ waḥda	un ṯerbaṯ ḏ iwwen	one/a single girl

10.2.1.2. Numeral ‘one’ used independently

The following table lists the forms of the numeral ‘one’ when used independently. In Bunsar, there are dialectal differences between Tamadit, which has the same form as in Seddat and Hmed, and Amaktan, which has the same forms as Zerqet and Mezduy. In Ketama and Taghzut, both native Berber and borrowed Arabic numerals for ‘one’ can be used independently, and the two can occur in sequence, e.g.

- *yan ~ waḥed ~ yan waḥed* (K/T) ‘one (M)’.

Gender distinction is obligatory in the native numerals for ‘one’.[680] The borrowed forms *waḥiṯ* and *waḥda* can be used for both genders, while *waḥed* is specifically masculine.

[680] The masculine form can be used e.g. as an answer to the question ‘How many boys are there in the room?’ or ‘How many sons do you have?’ The feminine form can be used e.g. as an answer to the question ‘How many girls are there in the room?’ or ‘How many daughters do you have?’

	K/T (< Berber)	K/T (< Arabic)	S/H/B	B/Z/M
M	yan	waḥed~waḥiṯ~waḥda	ig^{w}en	yuwwen~iwwen
F	yaṯ	waḥiṯ~waḥda	ig^{w}eṯ	yuwweṯ~iwweṯ

When the numeral 'one' is nominalized, it can be used in the sense 'someone'. In this case, it can be preceded by an indefinite marker – either the prenominal numeral 'one' or the indefinite element *ši*. In Ketama and Taghzut, the borrowed numeral for 'one', when nominalized, is obligatorily preceded by the native Berber numeral for 'one' (masculine *yan* or feminine *yaṯ*) used as an indefinite marker. The following table illustrates sentences meaning 'Someone (M) arrived' in different varieties.

'one' as indefinite marker	***ši* as indefinite marker**	**Variety**
i-dda = d yan waḥed~waḥiṯ[681]	*i-dda = d ši n yan*[682]	K/T
i-da = d un ig^{w}en	*i-da = d ši n ig^{w}en*	H
i-ɛda = d un iwwen	*i-ɛda = d ši n iwwen*	B
i-wsa = d un iwwen	*i-wsa = d ši n iwwen*	B/Z/M
3MS-come:P = VC one one:MS	3MS-come:P = VC some of one:MS	(gloss)

The feminine counterparts for 'someone' are:

'one' as indefinite marker	***ši* as indefinite marker**	**Variety**
yaṯ waḥiṯ (~ *yaṯ waḥda*)	*ši n yaṯ*	K/T
un ig^{w}eṯ	*ši n ig^{w}eṯ*	H
un iwweṯ	*ši n iwweṯ*	B/Z/M

10.2.2. Specific Set of Numerals

Following the Arabic grammar, cardinal numerals (3 to 19 and 100) have a distinct form in combination with some nouns that refer to time such as 'day', 'month', 'year', etc. These nouns take the suffix *-ayn* to express the dual number. In this case, the numeral 'two' is not used. Numerals eleven to nineteen take the suffix *-er*. From three to ten, the noun following the numeral is in the plural. Following numerals from eleven, the singular form of the noun is used. Some nouns have suppletive plurals (e.g. *ɛam* 'year' > *snin* 'years'). The following table lists the numerals used with this limited set of nouns. The nouns are listed below.

[681] Agrammatical in both Ketama and Taghzut: **i-dda = d waḥed*.

[682] Agrammatical in both Ketama and Taghzut: **i-dda = d ši n waḥed*.

Special set of numerals

	Numeral	Example ‘years’
3	telt	telt esnin
4	ṛbaɛ	ṛbaɛ snin
5	ḫems	ḫems esnin
6	sett	sett esnin
7	sebɛ	sebɛ esnin
8	temmen	tem(m)n esnin~temm esnin
9	tsaɛ	tsaɛ snin
10	ɛšeṛ	ɛšeṛ snin
11	ḥḏašer	ḥḏašer ɛam ~ sna
12	tnašer	tnašer ɛam ~ sna

Nouns that take a special set of numerals

Noun	Dual	Plural	Form used with 11 upwards	Translation
nhaṛ	yumayn	iyyam	yum	day
šhaṛ	šehṛayn	šhuṛ	šhaṛ	month
ɛam	ɛamayn	snin	ɛam ~ sna	year
derhem	---	ddrahem	dderhem	dirham

10.3. Ordinal Numerals

Ordinal numerals are all borrowed from Arabic. There are two sets. Set 1 ordinal numerals are used postnominally (as adjectives) and, as adjectives, distinguish three forms in most Senhaja varieties: masculine singular, feminine singular, and (common) plural. In Zerqet, the feminine plural is optionally distinguished alongside the common plural. As in Arabic borrowed adjectives, the plural suffix in *i*-final stems is realized as *(yy)-en* in Zerqet and as *(yy)-in* in most other varieties. Set 2 ordinal numerals are used prenominally and do not mark gender or number. The following class II (Arabic-morphology) nouns usually lack the Arabic article *l-* in most Senhaja varieties, while in Hmed, the Arabic article is optional. Hmed variety is also special in that it allows for set 1 numerals to appear prenominally, and set 2 numerals to appear postnominally with masculine singular nouns (see examples below).

Ordinal numerals set 1 (used postnominally) and set 2 (used prenominally)

	Set 1 (N + NUM)				**Set 2 (NUM + N)**
	MS	**FS**	**PL**	**FP (Zerqet)**	**MS = FS = PL**
1st	lluwwel ~lluli	lluw(w)la ~lluliyya	lluw(w)liyyen (Z); lluw(w)li(yyi)n	lluw(w)liyyaṯ	awwel
2nd	ttani	ttanya	ttaniyyen (Z); ttaniyyin	ttaniyyaṯ	tani
3rd	ttaleṯ	ttalṯa	ttalṯin	ttalṯaṯ	taleṯ
4th	ṛṛabeɛ	ṛṛabɛa	ṛṛabɛin	ṛṛabɛaṯ	ṛabeɛ
5th	lḫames	lḫamsa	lḫamsin	lḫamsaṯ	ḫames
6th	ssades	ssadsa	ssadsin	ssadsaṯ	sades
7th	ssabeɛ	ssabɛa	ssabɛin	ssabɛaṯ	sabeɛ
8th	ttamen	ttamna	ttamnin	ttamnaṯ	tamen
9th	ttaseɛ	ttasɛa	ttasɛin	ttasɛaṯ	taseɛ
10th	lɛašeṛ	lɛašṛa	lɛašṛin	lɛašṛaṯ	ɛašer

The following table lists pan-Senhaja examples with the masculine singular noun *(le)ktab* ‘book’ and the feminine singular noun *(l)qiṣṣa* ‘story’. The Arabic article is absent when the noun follows the set 2 numerals (optionally in Hmed).

	With the noun *(le)ktab* ‘book’		**With the noun *(l)qiṣṣa* ‘story’**	
	set 1 (N + NUM)	**set 2 (NUM + N)**	**set 1 (N + NUM)**	**set 2 (NUM + N)**
1st	lektab lluwwel	awwel ktab	lqiṣṣa lluw(w)la~ lluliyya	awwel qiṣṣa
2nd	lektab ttani	tani ktab	lqiṣṣa ttanya	tani qiṣṣa
3rd	lektab ttaleṯ	taleṯ ktab	lqiṣṣa ttalṯa	taleṯ qiṣṣa
4th	lektab ṛṛabeɛ	ṛabeɛ ktab	lqiṣṣa ṛṛabɛa	ṛabeɛ qiṣṣa
5th	lektab lḫames	ḫames ktab	lqiṣṣa lḫamsa	ḫames qiṣṣa
6th	lektab ssades	sades ktab	lqiṣṣa ssadsa	sades qiṣṣa
7th	lektab ssabeɛ	sabeɛ ktab	lqiṣṣa ssabɛa	sabeɛ qiṣṣa
8th	lektab ttamen	tamen ktab	lqiṣṣa ttamna	tamen qiṣṣa
9th	lektab ttaseɛ	taseɛ ktab	lqiṣṣa ttasɛa	taseɛ qiṣṣa
10th	lektab lɛašeṛ	ɛašer ktab	lqiṣṣa lɛašṛa	ɛašer qiṣṣa

In Hmed variety, different from Ketama and Zerqet, it is possible to have set 1 numerals before the nouns (marked for gender and number, as usual). Also, in Hmed, set 2 numerals (unmarked for gender and number) can follow masculine singular

nouns. In all these examples, the Arabic article can be absent or present in Arabic-morphology nouns.

	With the noun *(le)ktab* 'book'		**With the noun *(l)qiṣṣa* 'story'**
	set 1 (NUM + N)	**set 2 (N + NUM)**	**set 1 (NUM + N)**
1st	lluwwel (le)ktab	(le)ktab awwel	lluliyya~lluw(w)la (l)qiṣṣa
2nd	ttani (le)ktab	(le)ktab tani	ttanya (l)qiṣṣa
3rd	ttaleṯ (le)ktab	(le)ktab taleṯ	ttalṯa (l)qiṣṣa
4th	ṛṛabeɛ (le)ktab	(le)ktab ṛabeɛ	ṛṛabɛa (l)qiṣṣa
5th	lḫames (le)ktab	(le)ktab ḫames	lḫamsa (l)qiṣṣa
6th	ssades (le)ktab	(le)ktab sades	ssadsa (l)qiṣṣa
7th	ssabeɛ (le)ktab	(le)ktab sabeɛ	ssabɛa (l)qiṣṣa
8th	ttamen (le)ktab	(le)ktab tamen	ttamna (l)qiṣṣa
9th	ttaseɛ (le)ktab	(le)ktab taseɛ	ttasɛa (l)qiṣṣa
10th	lɛašeṛ (le)ktab	(le)ktab ɛašer	lɛašṛa (l)qiṣṣa

From 'eleven' upwards, there are no morphologically formed ordinal numerals. Instead, there is a construction based on the noun *nnemṛa* or *ṛṛaqem* 'number' followed by the corresponding cardinal numeral. There are no gender and number distinctions, e.g. *nnemṛa ḥḍaš* 'eleventh' (lit. 'number eleven').

Some examples follow.

(12) *waḍ lektab lluwwel a ġri-ġ* (K)
wadda lektab lluwwel na ġri-ġ (H)
waḍa lektab lluwwel na ġri-ġ (Z)
this:MS book first:MS RM read:P-1S
'This is the first book I read.'

(13) *lektab lluwwel a ġri-ġ hiyya waḍ* (K)
lektab lluwwel na ġri-ġ hiyya wadda (H)
lektab lluwwel na ġri-ġ hiyya waḍa (Z)
book first:MS RM read:P-1S she this:MS
'The first book I read is this one.'

The following example demonstrates that Hmed allows for set 1 numerals to be used prenominally (*a*), and set 2 numerals to be used postnominally with masculine singular nouns (*b*). This is ungrammatical in Ketama and Zerqet:

(14) (a) *wadda lluwwel (le)ktab na ġri-ġ* (H)
this:MS first:MS book RM read:P-1S
'This is the first book I read.'

(b) *wadda (le)ktab awwel na ġri-ġ* (H)
this:MS book first RM read:P-1S
'This is the first book I read.'

The following example demonstrates that with set 2 numerals (used prenominally), the following noun lacks the Arabic article in Ketama and Zerqet.[683] In Hmed, the Arabic article is optional:

(15) *waḏ awwel ktab a ġri-ġ* (K)
wadda awwel (le)ktab (na) ġri-ġ (H)
waḏa awwel ktab (na) ġri-ġ (Z)
this:MS first:MS book RM read:P-1S
'This is the first book I read.'

(16) *awwel ktab ġri-ḫ(ˆḫ), hiyya waḏ* (K)
awwel (le)ktab ġri-ġ=ṯ, hiyya wadda (H)
awwel ktab ġri-ḫ=ṯ, hiyya waḏa (Z)
first book read:P-1S=3MS:DO she this:MS
'The first book I read, it is this one.'

The following construction is found in Hmed, but is unnatural in Ketama and Zerqet:

(17) *wadda lluwwel n lektab/ lekṭub(a) na ġri-ġ* (H)
this:MS first:MS of book/ books RM read:P-1S
'This is the first of the books I read.'

In the following sentence, the numeral is used predicatively:

(18) *lektab=aḏ lluwwel a ġri-ġ* (K)
lekṭab=dda lluwwel na ġri-ġ (H)
lektab=yya lluwwel na ġri-ġ (Z)
book=PROX first:MS RM read:P-1S
'This book is the first one I read.'

[683] A further difference between the varieties is that in Ketama, the relative marker *a* is obligatory, while in Hmed and Zerqet, the relative marker *na* is optional in these examples.

An example with the feminine singular noun *(l)meṛṛa* ‘time’ follows: *tani meṛṛa* and *lmeṛṛa ttanya* ‘second time’ are in free variation.

(19)	*ṯaḏ*	*tani*	*meṛṛa*	~ *lmeṛṛa*	*ttanya*	*a*	*tuḏu-ġ*	(K)
	ṯadda	*tani*	*(l)meṛṛa*	~ *lmeṛṛa*	*ttanya*	*(na)*	*ɛeddu-ġ*	(H)
	ṯaḍa	*tani*	*meṛṛa*	~ *lmeṛṛa*	*ttanya*	*(na)*	*ɛeddu-ġ*	(Z)
	this:FS	second	time	~ time	second:FS	RM	go:I-1S	

‘It is the second time that I go.’

10.4. Collective Numerals

To express ‘alone’, in Western Senhaja (Ketama, Seddat, Taghzut), the numeral *waḥed* ‘one’ is used with a petrified Arabic instrumental preposition *b-* ‘with’: *bwaḥḏ~ḇuḥḏ-* (K/S), *ḇeḥḏ-* (T). In Hmed and Eastern Senhaja, there is no instrumental preposition: *weḥḏ-* (H), *weḥḥeḏ-* (B/Z/M) ‘alone’. This construction is followed by the Berber suffixes in most Senhaja varieties, but can take Arabic suffixes in Ketama (cf. Section 8.6.2.2). To express ‘with the (X number) of us/you/them’ (e.g. ‘with the five of us’, etc.), the following constructions are used.

Variety	**Construction**
Ketama	*b~s* + numeral + *bi-* + Arabic pronominal suffix
Rest of Snh. (T/S/H/B/Z/M)	*s* + numeral + *yyes(s)-/(y)is-* + Berber pronominal suffix

In Ketama, the initial instrumental preposition ‘with’ can be Arabic *b*, or Berber *s*, while the final preposition taking the pronominal suffix is invariably of Arabic origin, *bi-* (followed by Arabic pronominal suffixes). In the rest of Senhaja, the Berber instrumental preposition *s* is used, and there is a special linking morpheme (glossed as LINK) *(y)is-* before Berber pronominal suffixes (cf. Brugnatelli *forthcoming*). In Hmed and Taghzut, *yyes(s)/is-* can be understood as the Berber instrumental preposition ‘with’ (the Berber equivalent of Arabic *bi-*, cf. Section 9.2.1.4). However, in Zerqet, the instrumental preposition used with pronominal suffixes is *zi(yy)*, while *yes/is-* must be analyzed as a distinct element (a marker of collective numerals). It is possible that in Hmed and Taghzut, the linking morpheme and the instrumental preposition are simply homonyms. The following table presents an example.

‘With the five of us, you, them’

	Ketama	**The rest of Snh. (T/S/H/B/Z/M)**
1P	b~s ḫemsa bi-na	s ḫemsa (y)is-naġ (T/S/H/B/Z)/ (y)is-neġ (S/T/M)
2P	b~s ḫemsa bi-kum/ḵum	s ḫemsa (y)is-wen
3P	b~s ḫemsa bi-hum	s ḫemsa (y)isˆsen

Some examples with collective numerals follow:

(20) *n-edda* *b~s* *žžuž* *bi-na* (K)
1P-go:P with two with-1P
n-edda *žˆ* *ž(ž)už* *yis-neġ* (T)
n-edda *s* *žžuž* *yis-naġ* (H)
n-eɛḏa *žˆ* *ž(ž)už* *(y)is-naġ* (B/Z)
1P-go:P with two LINK-1P
‘We went with the two of us.’

(21) *h-edda-m* *b~s* *tlaṭa* *bi-ḵum* (K)
2-go:P-2P with three with-2P
ṯ-edda-m *s* *tlaṭa* *(y)is-wen* (H/T)
ṯ-eɛḏa-m *s* *tlaṭa* *(y)is-wen* (B/Z)
2-go:P-2P with three LINK-2P
‘You (PL) went with the three of you.’

(22) *dda-n* *b~s* *aṛbɛa* *bi-hum* (K)
go:P-3P with four with-3P
dda-n *s* *aṛbɛa* *(y)is-sen* (H/T)
ɛḏa-n *s* *aṛbɛa* *(y)is-sen* (B)
go:P-3P with four LINK-3P
‘They went with the four of them.’

10.5. Conclusions

All Senhaja cardinal numerals except for ‘one’ are borrowed from Arabic. They are the same across Senhaja, with minor differences in pronunciation. Cardinal numerals are followed by the Genitive *n* that links them to the following noun. Nouns that mark the state are in EA. The Arabic coordinator *u* is used to link units and tens, e.g. *waḥeḏ u ɛišrin* ‘twenty-one’ (lit. ‘one and twenty’).

For the number ‘one’, the borrowed numeral coexists with the native one, that can be used in combination with a noun or independently. When preceding a noun, ‘one’ can function as an indefinite marker. As an indefinite marker, it can precede other numerals in the sense ‘about’, ‘approximately’. In Taghzut and Hmed, the numeral one as an indefinite marker can be followed by a noun in plural.

The gender is distinguished across Senhaja when the numeral ‘one’ is used independently. In Ketama and Taghzut, the numeral is optionally marked for gender when it precedes a noun. In other varieties, the prenominal numeral is invariable. The borrowed Arabic numeral ‘one’ can also be optionally marked for gender. When combined with a noun, in Ketama and Taghzut, it follows it. In other varieties, only the Berber numeral ‘one’ can be used with a noun, either preceding or following it. When the numeral follows the noun, the predicative *d̲* is usually used. Constructions with postnominal numerals and rare.

In some varieties, the numeral ‘one’ can occur on both sides of the noun. In Ketama and Taghzut, the postnominal ‘one’ is of Arabic origin. In Bunsar and Zerqet, the postnominal numeral is Berber. In Ketama and Taghzut, both native and borrowed numerals for ‘one’ can be used independently, and the two can occur in sequence. When the numeral ‘one’ is nominalized, it can be used in the sense ‘someone’. In this case, it can be preceded by an indefinite marker –the prenominal numeral ‘one’ or the indefinite *ši*.

Ordinal numerals are all borrowed from Arabic. There are two sets: set 1 is used after a noun and distinguishes three forms (MS, FS, PL), and set 2 is used prenominally and does not mark the gender or number. The following class II nouns usually lack the Arabic article *l-* in most varieties, while in Hmed, the Arabic article can be present. In Hmed, set 1 numerals can appear prenominally, and set 2 numerals can appear postnominally.

To express ‘with the (X number) of us/you/them’, Ketama uses the construction *b* (<Ar.) ~ *s* (<Berber) ‘with’ + numeral + *bi-* (<Ar.) ‘with’ + Arabic pronominal suffix. In the rest of Senhaja, the construction is *s* (<Berber) ‘with’ + *yes/is-* (linking morpheme) + Berber pronominal suffix.

11. Adverbs

In Senhaja, one finds true adverbs (lacking nominal characteristics), but also nouns that can be used as adverbial phrases (without a preposition). In this chapter, we focus on true adverbs.[684] Adverbs as well as some nouns used adverbially can take deictic clitics, which, however, do not always coincide with the regular postnominal deixis (as Section 6.6). For example, in both Hmed and Zerqet, we find *ḏ-a* 'here' vs. *ḏ-in* 'there', while there are no postnominal clitics *a* or *in* in these varieties. Similarly, Ketama has *ḏ-i* 'here' vs. *ḏ-is* 'there', but no clitics *i* or *is*. The same feature is found in other Berber varieties, cf. Kossmann 2012: 65.

In the following section, adverbs are listed, divided into different semantic categories. At the same time, there can be overlap between the categories, e.g. spatial/temporal (cf. Haspelmath 1997). Section 11.2 discusses the adverbial predicate and its negation.

11.1. Types of Adverbs

(1) Adverbs of Place

The following table lists some spatial adverbs. On *genna* 'sky; on; up', cf. Section 9.4.1.4. On *ṭalaɛ*, cf. Section 9.4.1.5; this word can also function as an active participle in the sense 'ascending'. In the following examples, it functions as an adverb:

(1) *Muḥemmeḏ* *i-ḥeddem* *ṭalaɛ* (K/H/Z)
Mohammed 3MS-work:I up
'Mohammed is working upstairs.'

The same is true for the Ketama *habeḏ* 'below, down'. The Hmed adverb *allaġ* (and the cognate Zerqet *ažiġ*) 'below, down' has nominal characteristics. It almost always appears with the clitic *in* in Hmed.

[684] Cf. Section 9.4 on the locative expressions. On the dual in some adverbial expressions borrowed from Arabic, see Section 6.3.4.3. On adverbial interrogatives, see Section 12.4.4.1 on interrogatives.

Ketama	Hmed	Zerqet	Translation
ḏi, ḏiyyah -ar ḏi(yyah)	ḏa -zar ḏa	ḏa -zar(a) ḏa	here -towards here
zg-essi, sg-essi siyyah, sgessiyah	zi(g)-swa, ziḫ-swa	zi-swa	from here
ḏis(s), ḏin(ah) -ar ḏis(s), ar ḏin(ah)	ḏinna, ḏin(hah) -zar ḏinna, zar ḏin(hah)	ḏina, ḏin -zar(a) ḏin	(over) there -towards there
sg-essis, sg-essin	zi(g)-swinna zi(g)-swin(hah)	zi-swin	from there
beṛṛa -ɛla beṛṛa -s beṛṛa -ar beṛṛa	beṛṛa -ɛla beṛṛa -zi beṛṛa -za beṛṛa	beṛṛa -ɛla beṛṛa -z(g)i beṛṛa -za beṛṛa	outside -(on the) outside -from outside -towards outside
ḏaḫi -ar ḏaḫi -s ḏaḫi	ḏiḫi -za ḏiḫi -zi ḏiḫi	ḏiḫel -za ḏiḫel -z(g)i ḏiḫel	inside -towards inside -from inside
genna, ṭalaɛ -ar genna, ar ṭalaɛ -s genna, s ṭalaɛ	genna, ṭalaɛ -za genna, za ṭalaɛ -zi genna, zi ṭalaɛ	genna, ṭalaɛ -za genna, za ṭalaɛ -z(g)i genna, z(g)i ṭalaɛ	up, above -upwards -from above
habeḍ -g habeḍ -ar habeḍ -s habeḍ	allaġ(=in) -g^{w} allaġ=in -zaˆ(a)llaġ=in -zig^{w} allaġ=in	ažiġ -gi lqaɛ, g ažiġ -za lqaɛ, zaˆ(a)žiġ -z(g)i lqaɛ, zg ažiġ	below, down -down -downwards -from below

(2) Adverbs of Time and Frequency

The following table lists some temporal adverbs. Almost all are Arabic loans. The first one, *deġda* ‘earlier today’, has not been found anywhere else in Senhaja, but is also found in Ghomara, *deġdaḵ* (Mourigh 2015: 271).

Ketama	Hmed	Zerqet	Translation
miḏa~deġda[685]	---	---	earlier today
luḫ, ḏruḫ, derwaḫ, daba[686]	daba, amḵa	daba, luḫ	now
ɛaḏ	ɛaḏ	ɛaḏ	still, yet
saɛa	saɛa	uḫenna	then
menbeɛd, mbeɛd	menbeɛd	menbeɛd	later, after
bellati	bellati	bellati	later
meṛṛa	meṛṛa	meṛṛa	together
meṛṛa meṛṛa	meṛṛa meṛṛa	meṛṛa meṛṛa	sometimes
qrib	qrib	qrib	soon, almost
ɛlayn	ɛlayn	ɛlayn	soon, almost
daymen	daymen	daymen	always
ġaliban	ġaliban	ġaliban	usually
ɛemmeṛ	ɛemmeṛ ~ ɛem(m)ṛes	ɛemmeṛ(s)	never[687]

(3) Adverbs of Manner

The following table lists some adverbs of manner. They are also mostly Arabic loans, while *direkt* ‘straight, direct’ is a European loan (cf. French *direct*, Spanish *directo*).

Ketama	Hmed	Zerqet	Translation
hayḏa(k), hamḵa[688]	ssa	ssa	like this
deġya	deġya	deġya	quickly
šwiya	šwiya	šwiya	slowly
mezyan	mezyan	mezyan	well
ḥsen	ḥsen	ḥsen	better
nišan, direkt	nišan, direkt	nišan, direkt	straight
biha biha	ḇiha ḇiha	biha biha	certainly, directly
kif kif, bḥal bḥal	kif kif, bḥal bḥal	kif kif	same

[685] The variant *miḏa* is used in Beni Aisi, and *deġda* in Beni Hmed.

[686] There are dialectal preferences: Beni Aisi *luḫ*, Beni Hmed *ḏruḫ*, Lmekhzen/Asammar/Sahel *derwaḫ*, Talghunt *daba* (all ultimately from Arabic).

[687] Cf. Section 8.6.2.2. This word takes Arabic suffix pronouns in Ketama, but remains invariable in Zerqet. In Hmed, the word can take either Arabic or Berber suffix pronouns, or can remain invariable.

[688] *hamḵa* is used by the old generation; *hayḏa* is a borrowing from Arabic.

(4) Adverbs of Quantity, Degree, and Probability

Adverbs of quantity and degree can be followed by the Genitive *n* to link the adverb to the noun.

Ketama	Hmed	Zerqet	Translation
bezzaf	bezzaf	bezzaf	a lot, many, much, very
meṛṛa	meṛṛa	meṛṛa	all at a time (together)
kulši	kulši	kulši	everything
šwiyya	šwiyya (šwiš, šwiyyeš)	šwiyya	little
belḥaq	belḥaq	belḥaq	actually, in fact
imken, waqila	imken, waqila	imken, waqila	probably, maybe

(5) Varia

Some of the following words have been classified as adverbs.[689]

Ketama	Hmed	Zerqet	Translation
wah, ih, ah, iyyeh	wah, ih, ah, iyyeh	wah, ih, ah, iyyeh	yes
lla	lla	lla	no
yak~yak̲	yak~yak̲	yak~yak̲	isn't it? right?
ila aḫiri-h, kḍa kḍa kḍa	ila aḫiri-h, kḍa kḍa kḍa	ila aḫiri-h, kḍa ḍ ekḍa ḍ ekḍa	etc.

11.2. The Adverbial Predicate and its Negation

The adverbial phrases can function as predicates. The adverbial predicate can follow or precede the subject, e.g.

(2) *netta* *sis* (K)
he from.there
netta *zi* *swin* (H/Z)
he from there
'He is from there.'

[689] The words for 'yes' and 'no' have been variously classified as adverbs, interjections, grammatical particles, or as a class of words on their own (see e.g. Sonnenschein 1917: 54, West 1913: 173).

(3) *ḏin ya wḫyam* (K/T)
there one house:EA
'There is one house.'

(4) *ḏin bezzaf n ṯemġarin* (Z)
there many of women:EA
'There are many women.'

Adverbial predicates use some strategies that are also used to negate adjectival and participial predicates, but there are also some differences. For example, usual adverbal predicates are normally not negated by means of the discontinuous negation *ma...š* or *u...š* (while this is possible with adjectives and participles).[690] Nevertheless, some types of adverbial predicates also accept the discontinuous negation *u... š*. We first illustrate the common ways to negate an adverbial predicate (such as 'from here'): a) by means of the negated form of the verb 'to be' (K/T/H), or b) by means of *maši* (across Senhaja):

(5) (a) *u lli-ġ š sgˆ essi* (K)
u lli-ġ š ziˆ swa (H)
NEG be:P-1S NEG from here
u lli-ġ š ssi (T)
NEG be:P-1S NEG from.here
(b) *nekki(ni) maši sgˆ essi* (K)
nekki(ni) maši ziˆ swa (H/Z)
I NEG from here
'I am not from here.'

The following examples are specific to Taghzut and use the same strategies as found with adjectives:

(6) (a) *nekki(ni) uliš ssi* (T)
I NEG from.here
(b) *nekki(ni) u šay ssi* (T)
I NEG NEG from.here
'I am not from here.'

[690] In this regard, Senhaja is different from Ghomara (Mourigh 2015: 297).

The following examples are specific to Hmed and use the same strategies as found with adjectives:

(7) (a) *ma ṛa-ni š ziˆ swa* (H)
NEG PRS-1S NEG from here
(b) *u ṛa-ni š ziˆ swa* (H)
NEG PRS-1S NEG from here
'I am not from here.'

Usual adverbial predicates do not accept the negation by means of *u* (or *ma*)... *š*. However, the adverb *ḏin* (T/H/Z) 'there' can be negated by means of *u... š*.[691] The resulting form *u ḏin š* can be translated as 'There is no(t)/There are no(t)', e.g.

(8) *u ḏin š bezzaf n medden* (T/H/Z)
NEG there NEG many of people
'There are not many people.'

(9) *u ḏin š Muḥemmeḏ* (T/H/Z)
NEG there NEG Mohammed
'There is no Mohammed.'

The following sentence is ungrammatical in Hmed and Zerqet, but accepted in Taghzut:

(10) *netta u ḏin š* (T, *H, *Z)
he NEG there NEG
'He is not there.'

To express 'He is not there', usually, the negated form of the verb 'to be' can be used in Hmed (and also accepted in Taghzut), and the negator *maši* in Hmed and Zerqet:

(11) (a) *u ḏ-ella š ḏin* (T/H)
NEG 3MS-be:P NEG there
(b) *netta maši ḏin* (H/Z)
he NEG there
'He is not there'.

[691] In the Imugzan dialect of Hmed, the negation by means of *ma...š* is also accepted.

11.3. Conclusions

In Senhaja, one finds true adverbs (lacking nominal characteristics), but also nouns that can be used adverbially without a preposition (especially in the locative expressions). Adverbs as well as some nouns used adverbially can take deictic clitics, which, however, do not always coincide with the regular postnominal deixis.
The adverbial phrase can function as predicates. In this function, it can follow or precede the subject. The adverbial predicate is usually negated using the same strategies as a nominal predicate, viz. a) by the negated form of the verb 'to be', or b) by means of the single negator *maši*. As with other non-verbal predicates, in Taghzut, the negation by means of *uliš* or *u šay* (in succession) is possible, and in Hmed, the negation of the particle *ṛa-* (*ma ṛa-... š, u ṛa-... š*).

Different from the adjectival or participial predicates (and different from Ghomara), the adverbial predicate usually cannot be negated by the discontinuous negation *ma...š* or *u...š*, with the exception of *ḏin* (T/H/Z) 'there' that accepts the discontinuous negation *u... š*, yielding *u ḏin š* 'There is no(t)/ There are no(t)'.

12. Verbal Clitic Chain and Clitic Movement

12.1. Introduction

This chapter discusses the verbal clitic chain and the conditions that cause clitic movement. The verbal clitics make part of the verb complex (cf. Chapter 5), defined here as the verb together with the verbal particles and clitics. While verbal particles have a fixed place (before or after the verb), this is not the case with the clitics, that can follow or precede the verb, depending on the syntactic conditions. Because the verbal clitics can occur on either side of the verb, they are sometimes referred to as *verbal satellites* (Galand 2010: 174-175). Different from some other Berber languages (e.g. Tarifiyt), prepositions with pronominal suffixes and deictic adverbs do not undergo fronting in Senhaja, and are always found in a postverbal position. The clitics in Senhaja normally cannot be separated from the verb: they always appear either directly following it, or directly preceding it. The only exception is the prohibitive in Western Senhaja.

Clitic mobility is taken as a defining feature of syntactic clitics. This feature distinguishes them from other (prosodic) clitics, as e.g. postnominal deictic clitics. The definition of (syntactic) clitics is discussed in Section 12.2, together with the issue of the clitic host and the applicability of Wackernagel's Law in Senhaja. As mentioned in Chapter 5, clitic fronting is known as *attraction* in Berber, and the element that causes clitic fronting is an *attractor*. However, it is not certain that the preverbal element that causes clitic fronting serves as a clitic host. Instead, there are some examples that show that clitics are always (prosodically) attached to the verb, whether in a postverbal or preverbal position (notated here with the equation sign). Cf. Section 5.1 for some reasons why the clitics are not written as attached to a preverbal element. For the discussion of the verbal clitics in isolation (their meaning and forms), see Chapter 5. Here, we focus on the behavior of the clitics when they occur together in a clitic chain in unmarked contexts (postverbal position, Section 12.3), and on the conditions that cause their movement (Section 12.4). The final section of this chapter (Section 12.5) discusses the divergent clitic behavior in Taghzut.

Chapter 14 is devoted to the morphophonology of the verbal complex across Senhaja. Both postverbal and preverbal clitics are discussed in this chapter. In Ketama, the behavior of the verbal clitics under attraction conditions is different from the rest of Senhaja (including Taghzut) in that the clitic fronting can be incomplete, and the ventive clitic can be doubled, and this is not limited to the verb forms in the Imperfective. This special behavior is studied separately in Chapter 13.

12.2. Defining (Syntactic) Clitics

12.2.1. Introduction

As discussed in the Introduction (Section 1.11), there are two major types of clitics in Senhaja. Some are prosodically (phonologically) dependent, but do not undergo movement. These are, for example, the deictic clitics found with the noun (Section 6.6). Such clitics are referred to as *prosodic clitics* in this thesis, following El Hankari 2021 (see e.g. El Hankari 2021: 199). Another type of clitics is constituted by *syntactic clitics*. They have an important characteristic – namely, they undergo movement under certain conditions. In Senhaja, these are verbal clitics that make part of the verbal complex (Chapter 5). In this chapter, we focus on syntactic, mobile clitics. See Section 12.2.2 for the theoretical background and problems in defining the clitics. Our goal here is not to examine the status of clitics in a general theory of language structure, or to make generalizations about clitics in other languages, but to study the behavior of mobile clitics in Senhaja.

Verbal clitics are characterized by their mobility. Unlike PNG affixes, their position with regard to the verb is not fixed, and they can be found either following the verb (in unmarked contexts, such as perfective, affirmative), or preceding it (in specific marked contexts such as non-realized, negation, see Section 12.4). There are three types of verbal clitics:

1) pronominal clitics of the Indirect Object;
2) pronominal clitics of the Direct Object;
3) the ventive clitic *d* ('hither'), glossed here as VC.

Depending on the position and the phonetic environment, the clitics can take different forms (there are different allomorphs). For the different forms of pronominal clitics, see Section 5.3. On the combination of the DO pronominal clitics with the ventive *d*, cf. Section 14.2.1. Clitics can appear together in a clitic chain (with maximally three members, and where any of the members can be absent). The relative order of the clitics is (across Berber languages, and normally in Senhaja): IO + DO + VC.[692] In most varieties, the order of the clitics remains the same when the clitic chain is fronted. There are thus two basic schemes (various deviations from the usual clitic order in attraction contexts in Ketama are discussed in Chapter 13):[693]

[692] There are some restrictions on the IO + DO combinations. Thus, IO clitics cannot co-occur with the DO clitics other than third person (the Case-Person Constraint).

[693] In Ketama, when the IO and the DO clitics co-occur in the contexts of attraction, the clitic complex is usually split, so that the clitic fronting is partial.

a) VERB + IO + DO + VC, and
b) IO + DO + VC + VERB.

For example:

(1) *i-wwy* =*as* =*ṯ* *ˆiḏ* (K)
i- gg^{w}*y* =*as* =*ṯ* *ˆid* (H)
i-wwy =*as* =*ṯ* *ˆiḏ* (Z)
3MS-take:P =3S:IO =3MS:DO ˆVC
'He brought it (M) to him/her.'

(2) *š-a* *ˆs*= *t* *ˆiḏ* =*y-awi* (K: Sahel)
š-a *ˆs*= *t* *ˆid* =*y-awi* (H)
š-a *ˆs*= *ṯ* *ˆiḏ* =*y-awi* (Z)
FT-NR ˆ3S:IO= 3MS:DO ˆVC=3MS-give:A
'He will bring it (M) to him/her.'

In principle, the verbal complex can contain two pronominal clitics (IO and DO). However, there are some restrictions on the combination of IO+DO clitics. In Senhaja, the IO clitic can be followed by the DO clitic only when the DO is represented by the third person.[694] When the DO is the first or the second person, the clitic combination (IO+DO) is not allowed. Instead, the DO clitic pronoun is used, and the IO is expressed in a non-clitic manner by means of a prepositional phrase with a pronoun (the Dative preposition *i* followed by the independent pronoun, e.g. *i netta* 'to/for him', or the preposition *a ġur-* followed by the pronominal suffix, e.g. *a ġur-es* 'to(wards) him/her'), e.g.

(3) (a) *argaz* *a* *š-a* *ˆy*= *d*= *y-awi* *a* *ġur-eḵ* (K)
man:EL RM FT-NR 1S:DO=VC= 3MS-take:A to at-2MS
(b) *argaz* *a* *š-a* *ˆy*= *d*= *y-awi* *i* *ḵeğği* (K)
man:EL RM FT-NR 1S:DO=VC= 3MS-take:A to 2MS
'The man that is going to bring me to you (MS).'

In what follows, we focus on the IO+DO clitic combination, e.g.

[694] Constraints on the IO+DO clitic combinations are also found in other Berber languages as well as beyong (the so-called Case-Person Constraint, see e.g. Anagnostopoulou 2017). A situation similar to Senhaja is found in Tarifiyt, Ghomara, Zenaga, the Tunisian Berber varieties (Collins 1981-82), and in Siwi (Souag 2015a and p.c.). This restriction does not exist in Tuareg (Heath 2005, Kossmann 2011), Tashelhiyt, Kabyle, or Figuig (Kossmann 1997).

(4) *i-zzya* *ˆsen = t* *(i* *nehnim)* (K)
3MS-slaughter:P ˆ3P:IO = 3S:DO (to 3P)
'He slaughtered it for them.'

Note that the order of the pronominal clitics (IO + DO, as in *a*) does not correspond to the order of the lexically expressed complements (DO + IO, as in *b*):

(5) (a) *kk-aṭ* *= as* *= t!* (K)
give-IMP:PL = 3S:IO = 3S:DO
'Give (PL) it to him/her!'
(b) *kk-aṭ* *lektab* *iḏ* *urgaz!* (K)
give-IMP:PL book to man:EA
'Give the book to the man!'

12.2.2. Defining Clitics

As noted by Kossmann (2013: 8): "The differentiation between affixes, clitics and unbound forms is a difficult matter in Berber and Maghribian Arabic". In a classical definition, a *clitic* is a morpheme that has syntactic characteristics of a word (it is "syntactically independent"), but is "pronounced like an affix", i.e. is phonologically dependent on another word or phrase, called a "clitic host" (Crystal 1980). Sometimes, it is said that clitics behave like affixes, but are phonologically less dependent, as they are not in the prosodic domain of their host (e.g. Haspelmath 2015). There are two main categories of clitics depending on their position in relation to their host: a *proclitic* appears before its host, while an *enclitic* appears after its host. In reality, it is not always easy to distinguish "clitics" from "affixes" or independent words, and is not always easy to identify the "clitic host". There is also a distinction into 'simple clitics' and 'special clitics' (Zwicky 1977). However, this distinction is disputed (Bermúdez-Otero & Payne 2011).

The literature on clitics discusses a number of clitic properties. Zwicky & Pullum (1983) postulate five characteristics that distinguish clitics from affixes:[695]

1. Clitics do not select their hosts.
2. Clitics do not exhibit arbitrary gaps.

[695] Zwicky & Pullum's study does not provide the defining criteria for comparative concepts of affixes or clitics, but provides a set of diagnostic tests that might be relevant for assigning elements to the cross-linguistic categories of affixes and clitics (cf. Haspelmath 2011, 2015).

3. Clitics do not exhibit morphophonological idiosyncrasies.
4. Clitics do not exhibit semantic idiosyncrasies.
5. Clitics can attach to material already containing clitics (and affixes).

Zwicky 1985 proposes some tests that can be used to distinguish clitics from independent words:

1. Clitics form a phonological unit (i.e. a phonological word) with an independent word (a phonological test).
2. Clitics are accentually dependent (an accentual test).
3. Clitics are affix-like:
    1) clitics are bound elements; they do not occur in complete isolation (binding);
    2) clitics "close off" words to further affixation (closure);
    3) clitics combine with stems or full words (construction);
    4) clitics are strictly ordered with respect to adjacent morphemes (ordering);
    5) clitics typically have a single principle governing their distribution (combinatory possibilities);
    6) clitics usually consist of one morpheme (complexity).
4. Clitics are a part of a word-like construct and is immune to syntactic processes (syntactic tests):
    1) proper parts of words are not subject to 'deletion under identity' (deletion);
    2) proper parts of words are not subject to 'replacement by a pro-form under identity' (placement);
    3) proper parts of words are not subject to 'movement rules', i.e. they cannot serve as gaps in gap-filler relations with other constituents in a sentence (movement).
5. A clitic group (a host word with its clitics) should not be available when syntactic rules apply.

Zwicky 1985 also discusses a problematic category of words known as 'particles'. 'Particle' is a cover term for items that do not fit easily into established word classes. It is often used to refer to any invariable (indeclinable, uninflectable) item with a grammatical function. Thus, particles are distinguished negatively as the "words left over when all the others have been assigned to syntactic categories" (Zwicky 1985: 292). Zwicky 1985 argues that there is no grammatically significant category of particles and that there is no reason to insert a particle level of grammatical units between clitics and words. According to Zwicky, most particles are (independent) words. Particles also do not constitute an independent word class (i.e. parallel to

verbs, adjectives, nouns, adpositions, etc.), but should be rather linked to familiar syntactic categories.

Similarly, as pointed out by Zwicky (1994: xiii), "*clitic*... is an umbrella term, not a genuine category in grammatical theory. Umbrella terms are names for "problems", for phenomena that present "mixed" properties of some kind, not names for theoretical constructs." Indeed, the above-mentioned guidelines on how to distinguish clitics from affixes or independent words often leave space for various analyses. This problem has been pointed out by Haspelmath (2011, 2015) who concludes that "clitics" might not be a necessary category. To understand clitics and related phenomena, linguists used different taxonomies (Haspelmath 2015):

a. root vs. affix (Renaissance linguistics);
b. morphology vs. syntax (Schleicher 1859);
c. free vs. bound (Bloomfield 1933: 160);
d. XP vs. X^o (Chomsky 1957, Jackendoff 1977);
e. phonological word vs. grammatical word (e.g. Dixon 1977);
f. special clitic vs. simple clitic vs. bound word (Zwicky 1977);
g. phonological word vs. clitic group vs. phonological phrase (Nespor & Vogel 1986);
h. clitic pronoun vs. weak pronoun vs. strong pronoun (Cardinaletti & Starke 1999);
i. word vs. clitic vs. affix (standard textbooks, e.g. Spencer & Luís 2012)

Haspelmath 2011 describes some general (and problematic) clitic properties:

- Clitics are generally considered words, but no pause is possible between a clitic and its host.
- Sometimes, the mobility of the element is taken as a proof that it is a clitic.
- It is generally said that morphophonological idiosyncrasies are very common in combinations of stems and affixes, but should not occur in host-clitic combinations. However, morphophonological idiosyncrasies are also found in what by other criteria looks like host-clitic combinations. There are cases where a mobile clitic-like element influences the morphophonology of the host.

Haspelmath (2011) summarizes the following main criteria: 1) free occurrence, 2) external mobility and internal fixedness, 3) uninterruptibility, 4) non-selectivity, 5) non-coordinatability, 6) anaphoric islandhood, 7) nonextractability, 8) morphological idiosyncrasies, 9) deviations from biuniqueness. Among these, some criteria are usually selected and applied "to point in the same direction". However, the method is

not rigorous, because the criteria do not always coincide. According to Haspelmath (2011), “the problems boil down to the cross-linguistic disparateness and the within-language non-convergence of the identifying properties of clitics”. Haspelmath concludes that it is better to acknowledge that there is no one universally applicable concept of a “clitic” (as there is no one universal concept of a “word”) and hence clitics can be defined only in a language-specific way. To be sure, certain predictions about clitic behaviour are possible (e.g., that they should occur in a position peripheral to affixes). However, there is no rigorously defined cross-linguistic concept of a clitic, and clitics cannot always be clearly distinguished from affixes.

Some linguists (e.g. Hopper & Traugott 1993) have proposed a scale between the two poles of inflectional affix and independent word. Compare also Aikhenvald (2002: 43): “These parameters provide us with a scalar definition of clitics: each prosodically deficient morpheme occupies a particular place within a multidimensional continuum, from a fully bound to a fully independent morpheme”. So, we can speak of a continuum from affixes to independent words, where clitics occupy an intermediate position, with possible clusters (such as “affixoids”, “clitic groups”, “tight phrases”, and so on). Also, according to Klavans 1995, clitics are grammaticalized from lexical items and can be viewed as an intermediate stage between an independent lexical word and an affix. Finally, when it is difficult to assign a particular element to the class of “affixes” or “clitics” or “words”, a new intermediate category could be set up. Thus, the term “afficlitic” could be used for the element between affixes and clitics (Haspelmath 2011). Zwicky (1994: xiii-xiv) points out that many continuum proposals share the two main defects, namely a) there is no independently definable dimension for variation, so that the cline is an ad hoc creation, and b) there are many different ‘paths’ between the poles – not one dimension.

In any case, it is clear that the term *clitic* is applied to very heterogeneous elements, some of which may be more “independent” (word-like) than others (which are more affix-like), and that there is no clear-cut clitic/affix distinction. At the end of the concluding chapter of a book on clitics, Spencer & Luís (2012: 149) write: “while the CATEGORY of clitic may not exist, some sort of CONCEPT of clitic remains ubiquitous [...] as an umbrella term. [...] The term usefully points to elements which cannot easily be classified as normal affixes or normal function words”. Spencer & Luís (2013) give the following definition: the canonical clitic “has the canonical form properties of an affix [monomoraic CV syllable, prosodically dependent] and the canonical distributional properties of a function word [phrasal placement, wide scope over coordination]” (Spencer & Luís 2013).

To sum up, clitic is a concept not defined in a consistent way, but used for quite different phenomena in different languages, as there is no agreement on how to distinguish clitics from affixes or free words. Not only the clitics, but also the verbal complex can be defined differently. It definitely includes the "core" which consists of the verb, and arguably also of the periphery that includes everything "around" the verb that cannot be occur without it. The periphery thus includes verbal clitics, but also verbal particles (preverbal and postverbal negators, tense/aspect markers). The following section discusses generalizations about clitics in Berber.

12.2.3. Berber Verbal Clitics and the Clitic Fronting

Although it is difficult to provide a cross-linguistic definition of "clitics", it is possible to give an intra-language definition. In Berber, when distinguishing clitics and affixes, the criterion of *mobility* is important. In most Berber languages, in special (marked) contexts (such as irrealis, future, negation, relativization), clitics move to the preverbal position (see Section 12.4), while in unmarked contexts (past, affirmative), they follow the verb. Clitic mobility (attraction) led to Berber clitics sometimes being called "verb satellites" (e.g. Galand 2010), as they can appear on either side of the verb, depending on the context. Clitics can change their position also in other languages. For example, in Romance languages, there is a phenomenon known as *clitic climbing*.[696] Compare the following examples from Spanish:

(6) (a) *Quiero* *preguntar-te*
I.want to.ask-2S:DO
(b) *Te* *quiero* *preguntar*
2S:DO I.want to.ask
'I want to ask you (SG).'

In Spanish, in this case, both constructions can be used interchangeably. In Berber, as in Spanish, clitics can change their position, and can be placed in front of the verb. However, there are differences with Spanish:

1) In Berber, generally, clitics are fronted under certain conditions, and do so obligatorily. There is usually no free variation, and the clitics either follow, or precede the verb.[697]

[696] See e.g. Kayne 1989; Monachesi 2000.

[697] Variation can be found in some Berber varieties, including Ketama in specific contexts (see Chapter 13), but this is a deviation from the "classical" model.

2) In Berber, clitics are usually fronted when a certain element (e.g. a preverbal particle) attracts them (hence the term *attraction*). Consequently, clitics in Berber are normally not found in phrase-initial (P1) position as in Spanish, and are often restricted to a P2 (phrase-second, also known as the Wackernagel) position.[698]

Clitic fronting is found almost in the entire Berber-speaking world, under practically the same conditions and targeting practically the same elements. Clitic fronting is absent in the Easternmost Berber varieties (Awjila and Siwa, although clitic fronting exists in Jebel Nefusa and Sokna).

Variation in Berber is found regarding movability of pronominalized prepositions and deictic adverbs. In some varieties, they are part of the clitic chain, and are also fronted in attraction contexts.[699] Sometimes, in these varieties, pronominalized preposition remains after the verb in attraction contexts. In such cases, it is not part of the clitic chain.

Different from these varieties, pronominalized prepositions and deictic adverbs (such as *ḏa* (S/B/Z), *ḏi* (K/T) 'here') are not fronted in Senhaja.[700] The following examples show that fronting of adverbs and pronominalized prepositions does not take place in Ketama (*a*), while it takes place in Tarifiyt (*b*) (personal notes; Tuzin dialect).

(7) (a) *u teddr-aġ š ḏis* (K)
NEG live:I-1S NEG there

(b) *wa(r) din(i) zeddġ-eġ ša* (Tarifiyt)
NEG there live:I-1S NEG
'I don't live there.'

(8) (a) *u d= usi-ġ š a ġur-eḵ* (K)
NEG VC= come:P-1S NEG to at-2MS

(b) *war ġar-k d= usi-ġ ša* (Tarifiyt)
NEG at-2MS VC= come:P-1S NEG
'I did not come to you (MS).'

[698] There exist some exceptions, however, when clitics are not found in a P2. Furthermore, the P2 is not always easy to define. Cf. below on Wackernagel's Law.

[699] Fronting of pronominalized prepositions and adverbs is found e.g. in Middle Atlas Berber, Tarifiyt (Mourigh & Kossmann 2020), Figuig (Kossmann 1997: 271-272), and Tashelhiyt (Dell & Elmedlaoui 1989). In Zenaga, pronominalized prepositions are usually fronted, while adverbs remain postverbal (Taine-Cheikh 2017). In Tuareg, pronominalized prepositions and bare prepositions in prepositional relatives are also movable elements (Kossmann 2011).

[700] In Ghomara, as in Senhaja, such elements remain postverbal (Mourigh 2015: 319). The same situation is found in Ghadames (Kossmann 2013b). In Kabyle, fronting of adverbs and prepositions is rare (examples are mostly restricted to poetry).

There is no clitic fronting in pseudo-verbs, also in the presence of a negator or a question word (contexts that normally trigger clitic fronting, cf. Section 12.4).[701] For example:

(9) *ani* *aqaˆk̲?* (Z)
where QAˆ2MS:DO
'Where are you (MS)?'

In the expression *a šan-* 'what's the matter with' that takes DO clitics (cf. Section 5.3.4.4), the initial element *a* (the indefinite pronoun) functions as a question word 'who/what' (cf. Section 12.4.4.1). Although *a* normally causes clitic fronting, the clitics remain postverbal with *šan*:

(10) *a* *šan* *=iṯ?* (H/Z)
NDF matter =3MS:DO
'What's the matter with him?'

In the negated counterpart (found only in Hmed), in the presence of the negator *u* or *ma* (in free variation), the clitics remain postverbal as well, e.g.

(11) *u* *šan* *=iṯ* *walu* (H)
NEG matter =3MS:DO nothing
'Nothing is the matter with him.'

12.2.4. Wackernagel's Law

One possible analysis is to consider the clitic "phrase second" (P2) in Berber.[702] The clitic follows the first element of a phrase. If a verb appears as the first element in the phrase, the clitic follows the verb, e.g.

(12) *i-ẓṛa* *=t* (K)
3MS-see:P =3FS:DO
'He saw her.'

[701] Pseudo-verbs are not real verbs, but words that nevertheless have some verbal characteristics. In particular, they can take verbal clitics (in Senhaja, only DO clitics). Cf. Section 5.3.4.
[702] On Second-Position clitics, see in particular Anderson 1993, 1996, 2000, 2005.

When some preverbal element (e.g. a preverbal particle, a relative marker, a question word, or a conjunction) precedes the verb, this element occupies the first position in the phrase (P1). The clitic is "attracted" by the preverbal element, and still occupies P2, e.g.[703]

(13) *u* *t=* *i-ẓṛa* *š* (K)
NEG 3FS:DO= 3MS-see:P NEG
'He did not see her.'

This behavior is also found in other languages, and is known as *Wackernagel's law* (named so after Jacob Wackernagel who formulated the law in 1892), henceforth WL. According to this law, the unstressed words (clitics) are placed in syntactic second position, i.e. after the first stressed word in a clause. The law describes cliticization to the first element in the central part of the clause. Compare also the Tobler Mussafia law (cf. Tobler 1875; Mussafia 1888), which forbids clitics to appear in initial position.

For a WL analysis, the P2 position has to be defined. For defining P2, one must keep in mind that topicalized elements are not counted as P1, and they have no effect on clitic fronting.[704] For example:

(14) (a) *i-ḵešm* *=id* (K/H/Z)
3MS-enter:P =VC
'He entered.'
(b) *netta* *i-ḵešm* *=id* (K/Z)
he 3MS-enter:P =VC
'He entered.'

(15) (a) *Muḥemmeḏ* *i-ḵešm* *=id* (K/Z)
Mohammed 3MS-enter:P =VC
(b) *i-ḵešm* *=id* *Muḥemmeḏ* (K/Z)
3MS-enter:P =VC Mohammed
'Mohammed entered.'

Any WL analysis would have to rule out some extra-syntactic elements (such as *awzka* 'tomorrow', *gɛa* '(not) at all') from occupying P1. Consider the following examples:

[703] Alternatively, one could say that the clitic remains in its original position, while the verb got "postposed" vis-a-vis the clitic (the verb-clitic inversion).
[704] On topicalization in Berber, see Lafkioui 2010a, 2011c, 2012a, 2014, 2017b.

(16) (a) *š-a* *t=* *i-ẓeṛ* (K)
FT-NR 3FS:DO= 3MS-see:A
'He will see her.'
(b) *awazka* *š-a* *t=* *i-ẓeṛ* (K)
tomorrow FT-NR 3FS:DO= 3MS-see:A
'Tomorrow he will see her.'

(17) *waš* *gɛa* *w* *t=* *i-ẓṛa?* (Z)
Q at.all NEG 3FS:DO= 3MS-see:A
'Didn't he see her (at all)?'

The combination of the future marker *(ma)š* with the irrealis marker *a(ḍ)* could be counted as a single preverbal element occupying P1:

(18) *š-a* *t=* *i-ẓeṛ* (K)
FT-NR 3FS:DO= 3MS-see:A
'He will see her.'

WL can be applied to clitics in some Berber varieties. The law works when the clitics follow a preverbal particle (such as negation, irrealis) or some other elements that occupy the first position in a phrase and thus can serve as clitic hosts (or attractors). However, sometimes, there is more than one preverbal element, e.g. a combination of the negation marker *u* and the future *(ma)š-a* (which is possible in Zerqet). In this case, the fronted clitics occupy P3, unless we analyze the combination of the two (or three) preverbal elements as occupying P1. Compare:

(19) (a) *u* *(ma)šˆa* *t=* *i-ẓeṛ* *š* (Z)
(b) *(u)* *(ma)šˆa* *ṭ=* *i-ẓeṛ* *š* (H)
(c) *(-)* *(ma)šˆa* *t=* *i-ẓeṛ* *š* (K)
NEG F ˆNR 3FS :DO= 3MS-go:A NEG
'He will not see her.'

In the above example *(a)*, there are (at least) two preverbal elements in Zerqet (or three, if we analyze *(ma)š-a* as two preverbal elements). In Ketama (*c*), where the negator *u* is absent in such contexts, the clitic remains in the same place: following *(ma)š-a*, and directly preceding the verb. In Hmed (*b*), the negator *u* is optional, and its presence or absence has no consequences for the position of the clitic. In all these examples, clitics are adjacent to the verb (hence, they are called *verb satellites*), no

matter how many preverbal particles there are (for the negation of the Aorist, Taghzut allows the preverbal *š-a, u š-a, u maš-a, u ma maš-a*...). Even if we count *uˆma* as a single negation particle and *maš-a* as a single future particle, there are still at least two separate particles involved. In other words, "position 1" may involve complex elements.

More importantly, there is variation in relative clauses and related constructions, which in some Senhaja varieties can be made without an overt relative marker (as e.g. the relative marker *na* in Hmed and Zerqet), while in Ketama, the relative marker *a* is obligatory. Constructions without a relative marker would then have a "zero host", which is problematic for WL.[705] If the preceding noun is analyzed as occupying P1, there is a problem in Ketama, which has a noun in P1 and a relative marker in P2. Postnominal clitics have no consequences for the position of the verbal clitics. In any case, the verbal clitic occupies a different position in Ketama than in Zerqet in the following examples:

(20)	(a)	*argaz(=ad̲in)*	*a*	*d=*	*i-k̲ešm-en*	(K)
		man(=DIST:SG)	RM	VC=	RF-enter:P-RF	
	(b)	*aryaz=nna*	*(na)*	*d=*	*i-k̲ešm-en*	(H)
	(c)	*aryaz=nna*	*(-)*	*d=*	*i-k̲ešm-en*	(Z)
		man =ANP	(RM)	VC=	RF-enter:P-RF	
		'That man who entered (here)...'				

Compare the following Zerqet example with the distal deixis, where it is visible that the relative marker is optional (as in Hmed):

(21)	*aryaz =yyen*	*(a)*	*d=*	*i-k̲ešm-en*	(Z)
	man =DIST	(RM)	VC=	RF-enter:P-RF	
	'That man who entered (here)...'				

Such examples pose a problem for the "phrase second" analysis, as the clitics do not occupy the same position across Senhaja (however the "phrase second" position is defined). WL does not work in all relative clauses, which are central to clitic fronting in Berber. Moreover, it is not clear to what element the clitics are "attracted" in Zerqet (example *c* above), and what serves as a clitic host in such examples. If it is the verb, the clitics change from enclitics (postverbal position) to proclitics (preverbal position) in Zerqet. A "zero host" is problematic both for WL and the Tobler Mussafia law.

[705] There are other Berber varieties that do not have an obligatory relative marker but have clitic fronting in contexts of relativization, e.g. Figuig (Kossmann 1999).

A similar problem is found in questions formed with content question words (cf. Section 12.4.4). In Ketama, following a question word, there is a relative marker *a*, and clitic fronting is obligatory (example *a* below). In Zerqet, following a question word, there is no relative marker, but clitics are nevertheless (optionally) attracted (as in *b*). At the same time, in Zerqet, in combination with many question words, clitics can remain postposed (*c*). In *b* and *c*, clitics do not occupy the same position in Zerqet, and thus defy WL:

(22) (a) *fuqaš* *a* *d=* *i-rkem?* (K)
when RM VC= 3MS-arrive:P
(b) *fuqaš* *d=* *i-wweḍ?* (Z)
when VC= 3MS-arrive:P
(c) *fuqaš* *i-wwḍ* *=id?* (Z)
when 3MS-arrive:P =VC
'When did he arrive (here)?'

Consider also the following examples:

(23) (a) *(ḍ)ama(ni)* *a* *t=* *i-wwi?* (K)
layn *a* *ṭ=* *i-gg^{w}i?* (H)
where.to RM 3FS:DO= 3MS-take:P
(b) *layn* *t=* *i-wwi?* (Z)
where.to 3FS:DO= 3MS-take:P
(c) *layn* *i-gg^{w}i* *=ṭ?* (H)
layn *i-wwi* *=t* (Z)
where.to 3MS-take:P =3FS:DO
'Where did he take it (F) to?'

In example *(a)*, it can be argued that the 3FS:DO clitic is cliticized either to the relative marker *a*, or to the verb. In example *(c)*, the (postverbal) clitic is clearly cliticized to the verb. In example *(b)*, according to a functional explanation (cf. below Section 12.2.6), the question word *layn* 'where to' presumably attracts the clitic. However, it does not serve as a clitic host, as there can be a pause between *layn* and the clitic, while there cannot be a pause between the clitic and the verb form:

(24) (a) *[layn]* *[t=* *i-wwi]* (Z)
(b) **[layn* *=t]* *[i-wwi]*
where.to 3FS:DO 3MS-take:P
'Where did he take it (F) to?'

Because of such examples, in the present work, it was chosen to write clitics as cliticized to the verb.

Another problem for WL analysis is constituted by the Imperfective (and Imperative) Negative forms, that in some varieties (most dialects of Ketama, Zerqet) require clitic fronting, while in other varieties (Sahel dialect of Ketama, Taghzut, Seddat, Hmed, and Bunsar), clitics can (optionally) remain postposed:

(25) (a) *u* *d=* *ḵeššm-en* *š* (K: most dialects)
u *d=* *ḵeččm-en* *š* (Z)
NEG VC= enter:I-3P NEG
(b) *u* *ḵeššm-en* *=d* *š* (K: Sahel)
ula *ḵeččm-en* *=d* *š* (T/S/H)
u *ḵeččm-en* *=d* *š* (S/B)
NEG enter:I-3P =VC NEG

Divergent behavior of the clitic chain in Ketama, such as partial clitic fronting (example *b* below, cf. Chapter 13) cannot be readily explained by WL. Contrast the following examples: the construction *(a)* is found in Ketama as well as in other Senhaja varieties, while the construction *(b)* is specific to Ketama:

(26) (a) *š-a* *ˆs=* *ṯ=* *i-k* (K/Z)
FT-NR ˆ3S:IO=3MS:DO= 3MS-give:A
(b) *š-a* *ˆs* *=i-kk* *=iṯ* (K)
FT-NR ˆ3S:IO=3MS-give:A =3MS:DO
'He will give it (M) to him/her.'

For the construction *(b)*, a split Wackernagel analysis could be proposed, stating that if a fronted clitic occupies P2, the other clitic remains postposed.[706] However, this leaves the variation between *(a)* and *(b)* unexplained. Also, WL analysis does not explain the clitic repetition (cf. Chapter 13).

In conclusion, it can be said that preverbal particles cause clitic fronting, no matter how many of them in a row and no matter what (extra-syntactic) element precedes the particle (such as an independent pronoun, a lexical subject, or an adverb

[706] In McConvell's 1996 article, the term 'Split-Wackernagel' is used differently, i.e. not to refer to the split of the clitic chain (as found in Ketama), but to the split in the system, where some clitics sometimes appear in 2P position, and sometimes don't. A split-Wackernagel situation is when the former general 2P cliticization is being replaced by other types of cliticization. This is not about simultaneity of two positions for the clitics, but about simultaneity of two possibilities for the clitics to occur in a clause (as e.g. in Hmed/Taghzut Imperfective Negative).

like ‘tomorrow’). WL works in many examples, if we limit ourselves to the verbal complex (defined as including preverbal particles), and if we consider the combination of particles as P1. A modified version of WL can be postulated for Ketama. The constraint on clause-initial clitics (the Tobler Mussafia law) seems to be operative in Ketama, but it is not always operative in Zerqet, where clitics can be clause-initial in relative clauses and related constructions (content questions and some subordinate clauses). The two laws do not apply to all examples across all Senhaja varieties. In Ketama, the laws are more applicable than in Zerqet, due to the presence of an obligatory relative marker that can be analyzed as P1 and a clitic host. To sum up, even within Senhaja, it is necessary to distinguish between different systems for the sake of the (non-) obligatoriness of the relative marker.[707]

12.2.5. Clitic Host

It is a question (especially when clitics are “fronted”, i.e. when they occur to the left of the verb) if Berber clitics are proclitic or enclitics. Or can they be either, depending on their position vis-a-vis the verb? As discussed above, when clitics are fronted, they can be analyzed as cliticized to the verb (in which case they become proclitics rather than enclitics, as in postverbal position), or as cliticized to the preverbal element that attracts them and serves as a clitic host (in which case they remain enclitics).[708] The problem of the “zero host” in Zerqet constructions without an overt relative marker has also been raised. Dealing with the question of the clitic host, it is important to note that some Berber languages allow for the split (separation) of the clitic from the verb (SCV), where the clitic is separated from the verb by some element (often a particle which in other varieties can be analyzed as a clitic host). SCV can be in the preverbal and in the postverbal position. In Ketama, SCV in the preverbal position is found in prohibitives:[709]

(27) *u* *s* *i* *tak* *ši* (K)
NEG 3S:IO NEG give:I:IMP:SG NEG
‘Do not give (SG) to him/her!’

[707] A similar situation is observed within some other Berber varieties, such as Seghrushen, where the Tahla sub-variety has an obligatory relative marker, unlike the Imouzzar (Kossmann 2017b).
[708] The term *ambioclitics* is sometimes used for clitics whose host is not easily defined.
[709] See Section 13.4.2 for more details on Ketama prohibitives. Cf. also prohibitives in Igli Sud Oranais (Kossmann 2010). SCV (of different kinds) is found in Tahla Seghrushen (Kossmann 2017b), Chaouia (Lafkioui & Merolla 2002), Zwara (Serra 1964: 715-7, Brugnatelli 1993: 235), Ghadames (Kossmann 2013b), Zenaga (Taine-Cheikh 2017), and Mali Tuareg (Heath 2005: 593), among others.

Such examples can be taken as a proof that clitics are not always attached to the verb in Berber. Outside the prohibitives in Ketama, verbal clitics are not separated from the verb in Senhaja: they either follow the verb or precede it. Furthermore, the clitic chain in Ketama can be split (with clitics appearing on both sides of the verb), as discussed in Chapter 13.

12.2.6. Proposed Analyses

There are several theoretical studies devoted to Berber clitics, e.g. Ouhalla 1989, 1994, 2005a, 2005b; Boukhris 1998, 2010, 2013; Ouali 2005, 2011; El Hankari 2013; El Hankari & Ouhalla 2012, El Hankari 2021: 185-222. Different theories have been proposed, depending on what is taken as the default/underlying order in verb + clitics combinations. For example, it is possible to consider the sequence Verb + Clitic as the default situation, but it is also possible to consider the sequence Functional word + Clitic + Verb as the default situation, in which cause the sequence Verb + Clitic becomes an inversion (or a prosodic flip). According to Ouhalla 2005a, clitics are always attracted to functional categories, and never to lexical categories in Berber.[710] Ouhalla proposes a Clitic-Host Inversion rule that raises the verb to the left of the clitic. In Ouhalla's approach, a verb followed by a clitic is a Clitic-Host inversion. When there is no grammatical element (such as a tense marker) that hosts the clitic in the preverbal position, the clitic follows the verb and is attached to a "null Tense". The author argues that the verb inversion prevents the occurrence of the clitic as sentence- (or phrase-) initial (the Tobler Mussafia law). Nevertheless, there is an exception, namely relativization without an overt relative marker. In this case, we cannot argue that clitics attach to the "zero" relative marker, as zero cannot serve as the clitic host.

Ouali (2011) discusses agreement, pronominal clitics, and negation in Tamazight (Middle Atlas Berber). Ouali provides a convincing analysis of Tamazight clitics, but it is not entirely applicable to Senhaja. Here, it is important to note that as clitic placement is sometimes flexible in Senhaja, no analysis can in fact "predict" or explain their placement entirely. In a review article, El Hankari (2013) tests the validity of Ouali's analysis against data from Tarifiyt. Ouali adopts Chomsky's (2001, 2004) theory whereby agreement is a basic relation between two heads. Ouali shows how the word order is derived in Berber. When an auxiliary (in the present work: a preverbal element, e.g. a tense marker) is used, clitics appear between the auxiliary and the verb. However, the verb precedes clitics where no functional word is present. In

[710] Ouahalla's theory changed through the years from right-adjoined clitics (Ouhalla 1988, 1989) to left-adjoined clitics (Ouhalla 2005a).

Ouali's approach, the ordering of clitics is fixed rather than derived by movement: "clitics head their own projection where they are base-generated". The positions clitics occupy are non-argument positions. That is, clitics are not arguments, but functional heads which behave more like verbal affixes or agreement markers.

Ouali posits two functional categories for a basic verbal clause, which correlate with two movements of the verb. The first movement is claimed to be syntactic, whereas the second movement is claimed to be phonological.[711] Ouali's analysis works for a number of examples. However, analysis of attachment of clitics to a functional category is problematic in some cases, as there are exceptions. For example, in Senhaja, as well as in Tarifiyt, past markers (cf. Section 5.4.1) such as Ketama *ara* do not attract clitics, while they are functional morphemes e.g.

(28) *ara* *ḫedm-aḫ* *ˆt* (K)
PST work:P-1S ˆ3FS:DO
'I worked on it.'

There are also other functional morphemes, such as the question particles *waš* or *ka*, or complementizers *ila* and *belli*, that cause no clitic fronting in Senhaja, e.g.[712]

(29) *i-ssen* *belli* *h-esġa* *=ṯ* (K)
3MS-know:P that 3FS-buy:P =3MS:DO
'He knows that she bought it (M).'

Mourigh 2015 discusses content question words (which are normally followed by the relative marker *a* in Ghomara) and conjunctions and concludes that all conjunctions that cause attraction are either followed by the element *a* or end in *-a*, which is historically probably the relative marker (that causes attraction). The situation is largely the same in Ketama, but different in Zerqet (cf. Section 12.4.4.1 for a list of the question words, and Section 12.5 for a list of conjunctions in Senhaja), where there is no relative marker, and clitics may be either fronted or left postposed. Hmed occupies

[711] Clitic placement is generally believed to be determined by factors that are partly syntactic and partly prosodic (see Klavans 1980, 1985; Halpern 1993, Ouhalla 2005a, etc.).

[712] Across Berber, some complementizers (e.g. Tashelhiyt *is*) cause clitic fronting, while others (e.g. Tarifiyt *qa*) don't. Ouhalla 1989 discusses the difference between clitic placement in complementizing clauses in Western Romance vs. the rest of Romance. In Western Romance, declarative complementizers attract clitics in embedded clauses, while in the rest of Romance, they do not attract clitics. Ouhalla compares this situation to Berber, and concludes that Tamazight and Tashelhiyt are like Western Romance, while Tarifiyt is not. Senhaja in this regard behaves like Tarifiyt.

an intermediate position, as in this variety, most frequently, clitics are fronted when the relative marker *a* is used after a question word or a conjunction (as in Ketama), and clitics are left postposed when there is no relative marker (which is one possibility in Zerqet).

As Kossmann 2013a explains, different conjunctions have different origin. Some were borrowed from Arabic. Native conjunctions could have two different origins: some originated from a relative structure, and others from a structure with a grammaticalized verbal element. Different behavior of the clitics with different conjunctions could perhaps be linked to these different origins. In reality, however, it is often difficult to establish the exact origin of each construction, and also, subsequent changes by analogy could take place.

With functional morphemes, there is also a problem of the hierarchical ordering of the two functional categories, e.g. tense and negation. For Tarifiyt, according to El Hankari (2013), it seems that "original" (not grammaticalized) tense markers such as the irrealis *a(d̲)* follow the negation marker (hence, NEG + NR), but grammaticalized (originally lexical) items such as the past marker *ara/dža* (grammaticalized from the verb 'to be') precede negation (hence, PST + NEG: *ara ur*). In Ketama, two grammatical markers are rarely combined (with the exception of *š-a*, where the combination of *š* and *a* is obligatory). In other varieties, the marker *u* precedes both the future *š-a* (as in Tarifiyt) and the past marker (*iža/ǧǧa*), different from Tarifiyt. Also, in Hmed, the negation marker can precede the future marker *š-aˆtaft*, which is grammaticalized from the verb 'to find' (Section 5.4.2.2).

El Hankari 2010 explains that in the presence of multiple functional morphemes, the clitic moves to the functional host that is adjacent to the verb, but cannot move to the highest category due to an adjacency to the verb constraint. This results in WL with the adjacency constraint. However, the adjacency to the verb constraint is not observed in Ketama prohibitives, where the clitic is separated from the verb by the prohibitive *i*. In this case, the clitic follows the first functional element (and precedes the second one), and for some reason, the functional category is repeated.

Another problem is that some functional morphemes are clitic hosts (such as the future *š-a*, negator *u*), while others are not (e.g. prohibitive negator *i*, past marker *ara*, complementizers *ila* and *belli*), and some show variation (as some conjunctions or question words). Because of this discrepancy, the syntactic approach must be ruled out. At the same time, due to the same discrepancy, cliticization cannot be attributed exclusively to the phonological deficiency of the clitics. Rather, the discrepancy lies with the functional categories themselves, and not with the clitics.

El Hankari (2010) argues that for cliticization to take place, both the clitic and the functional element must be mutually phonologically dependent. That is, if the functional element is deficient such as the irrealis marker *aḍ* or the negative particle *u*, cliticization is expected to occur since clitics are not prosodic words that can stand alone. On the other hand, if the functional category is not deficient, such as the past marker *ara* or the future marker *ataf*, clitics remain postverbal. This proposal does not explain the origin of discrepancy of the functional categories. If the question word *layn* 'where to' is phonologically deficient and hence attracts the clitic, then why do we find *[layn] [t=i-wwi]* and not **[layn=t i-wwi]* 'Where did he take it to' (Zerqet)? Also, some question words can attract clitics, but can also be used on their own, which means that they are not phonologically deficient.

In the existing discussions, the major attention is given to the different kinds of functional morphemes, and to why some of them cause clitic fronting, and others don't. What we observe in Senhaja, however, is that under certain conditions, it is not only the functional morphemes, but the clitics themselves that matter. For example, in Ketama, in attraction contexts, different clitics may behave differently: the IO clitic may be fronted, while the DO clitic may remain postposed, and the ventive may be doubled. The interest of Ketama is that there is no uniform clitic behavior under the same fronting conditions. Another type of divergent clitic behavior is found in the Senhaja varieties that allow for postposed clitics in Imperfective Negative. In these varieties, it is not the functional morpheme, and not the clitics, but the verb form (aspect) that seems to be the culprit of the divergent clitic behavior. While in Taghzut, Hmed, and parts of Seddat the unusual behavior may be linked to the specialized negator *(u)la*, this is not the case in the Sahel dialect of Ketama, parts of Seddat, and Bunsar, which use the same negator *u* as Perfective Negative.

To sum up, the analyses proposed by e.g. Ouhalla, Ouali, and El Hankari, are able to explain some phenomena related to the Berber clitics, but not all of them. The major problems that have not been resolved yet include:

1) the "zero" clitic host in relative clauses without an overt relative marker (Zerqet);
2) the possibility of postverbal clitics despite the presence of a functional category to the left of the verb (e.g. a past marker);
3) variability in the placement of the clitics and the divergent clitic behavior in Ketama and in some other Berber varieties (e.g. partial clitic fronting and clitic repetition).

There is not one unified theory of Berber clitics that could explain all these phenomena. In our view, different explanations must sometimes be provided for different specific cases. Since the data are different, one theory or explanation cannot capture the clitic system with all its variations in Berber. For example, for the divergent behavior of the clitic complex in Ketama, we propose an explanation based on the grammaticalization, reanalysis, and the drive to disambiguate (cf. Chapter 13).[713] Some other examples of divergent behavior of clitics encountered in other varieties (cf. Section 13.4.4) also have a similar explanation. At the same time, since clitic behavior is the area where Berber varieties differ (even within Ketama there is a lot of variation), a single theory can hardly account for various deviations from the usual scheme.

12.2.7. Conclusion

It could have been possible to do without the term "clitics" in the description of Berber. Pronominal clitics could be classified as a type of pronouns, and the ventive clitic as a type an adverb. But neither of them is an independent word, neither can occur in isolation, and the parts of speech labels are usually applied to independent words. Also, all these elements can undergo fronting, and for this reason, it is convenient to have a term that refers to them all. The ventive is (nearly) invariable and hence "particle-like", but is "moveable" like a clitic (i.e. like the pronominal clitics).

To sum up, the term "clitic" is reserved in this study to mobile bound elements that are dependent (phonologically, morphologically, syntactically) on adjacent material. They are dependent phonologically in that they are "leaning" on the adjacent word (i.e. in pronunciation, they form part of the adjacent word). These elements exhibit some syntactic peculiarities: they often occur in the WL (phrase second) position and undergo fronting under certain conditions.

The term "particle", while it could have been avoided, is used in this study for invariable (indeclinable, uninflectable) grammaticalized elements ("function words", "grammatical words", "closed category words") that have peculiar semantics and idiosyncratic distributions. In Ketama, they occupy a certain position in relation to the verb (i.e. are either preverbal or postverbal).

Both "particles" and "clitics" could be called "small elements of grammar". Both share some properties (both are phonologically dependent, do not occur in isolation,

[713] In our analysis, the reason why the DO is often left postposed in Ketama, is to avoid ambiguity, as it would have often become indistinguishable when fronted (e.g. in combination with the homophonous 2S/3FS/2P verb prefix).

have peculiar semantics). According to some authors, there is no dichotomy clitics/particles, and particles can be clitics (i.e. can be cliticized to the host).[714] Furthermore, what is usually considered a "particle" in most Berber languages, might exhibit characteristics of a "clitic" in some. For example, in Mali Tuareg (Heath 2005), stress placement shows that the preverbal irrealis particle *ad* is a proclitic. In this study, (syntactic) "clitics" are defined as "mobile", vs. "particles" that occupy a certain position with regard to the verb. As in most sources on Berber, bound pronouns (DO and IO series) and the deictic marker on the verb are considered (syntactic) clitics, and subject markers on the verb are considered affixes.[715]

12.3. The Clitics in Unmarked Context

This section discusses postverbal clitics in unmarked contexts. In the paradigms, the Perfective Positive form of the verb is used. In unmarked contexts, the clitics can appear only after the verb. For the verb with a single DO and IO clitic, see Sections 5.3.1 and 5.3.2, respectively. For a verb with a single ventive clitic, see Section 5.3.3. Here, we are only concerned with the clitic combinations (IO + VC, DO + VC, IO + DO, and IO + DO + VC). On allomorphy in DO + VC clitic combination, see Section 14.2.1.

12.3.1. IO + Ventive and DO + Ventive

The following table shows the combination of the IO and DO clitics with the ventive in a postverbal position in Ketama and Zerqet following the verb *i-wwi* 'he took' (with the ventive: 'he brought'), e.g.

(30) *i-wwy* =*ay* =*d* (K/Z)
3MS-take:P = 1S:DO/IO = VC
'He brought me (here).' or 'He brought for me (here).'

The IO and DO clitics are identical in these varieties, except for the third person.

[714] In Kossmann 2014, the ventive *dd* is sometimes called a "particle" and sometimes a "clitic".

[715] A different approach is found e.g. in Abdel-Massih 1971. Note that when not attached to the verb (e.g. with prepositions), bound pronouns are considered affixes.

3MS verb form *i-wwi* 'he took' with IO/DO + ventive in Ketama/Zerqet

CL	IO + ventive 'he brought for...'	DO + ventive 'he brought...'
1S	i-wwy = ay = d	i-wwy = ay = d
2MS	i-wwy = ak̲ = d	i-wwy = ak̲ = d
2FS	i-wwy = am = d	i-wwy = am = d
3MS	i-wwy = as = d	i-wwi = hˆid̲ (K), i-wwi = t̲ˆid̲ (Z)
3FS	i-wwy = as = d	i-wwi = hˆed (K), i-wwi = t̲ˆid̲ (Z)
1P	i-wwy = anaġ = d	i-wwy = anaġˆd
2P	i-wwy = awen = d	i-wwy = awen = d
3P	i-wwy = asen = d	i-wwi = hen = d (K), i-wwi = t̲en = d (Z)

The following table shows the combination of the IO and DO clitics with the ventive in a postverbal position in Hmed with the verb *i-gg^{w}i* 'he took'. Different from Ketama and Zerqet, Hmed distinguishes the IO from the DO series also in the second person (2MS, 2FS, and 2P).

3MS verb form *i-gg^{w}i* 'he took' with IO/DO + ventive in Hmed

CL	IO + ventive 'he brought for...'	DO + ventive 'he brought...'
1S	i-gg^{w}y = ay = d	i-gg^{w}y = ay = d
2MS	i-gg^{w}y = ak̲ = d	i-gg^{w}y = ak = id
2FS	i-gg^{w}y = am = d	i-gg^{w}y = akem = d
3MS	i-gg^{w}y = as = d	i-gg^{w}i = t̲ˆid
3FS	i-gg^{w}y = as = d	i-gg^{w}i = ṭˆid
1P	i-gg^{w}y = anaġˆd	i-gg^{w}y = anaġˆd
2P	i-gg^{w}y = awen = d	i-gg^{w}y = ak^{w}en = d
3P	i-gg^{w}y = asen = d	i-gg^{w}i = t̲en = d

The following tables show the paradigms with the verb form *šebbṛ-en* 'they grabbed' with the IO and DO clitics with the ventive. The Ketama forms differ from Zerqet and Hmed in the treatment of the schwa in the 3P subject suffix *-en*, which is realized as *-an* when followed by V-initial clitics (cf. Section 14.3.1.1).

3P verb form *šebbṛ-en* 'they grabbed' with IO/DO + ventive in Ketama

CL	IO + ventive 'they grabbed for...'	DO + ventive 'they grabbed...'
1S	šebbṛ-an = ay = d	šebbṛ-an = ay = d
2MS	šebbṛ-an = ak̲ = d	šebbṛ-an = ak̲ = d
2FS	šebbṛ-an = am = d	šebbṛ-an = am = d
3MS	šebbṛ-an = as = d	šebbṛ-en = t̲ˆid̲
3FS	šebbṛ-an = as = d	šebbṛ-en = t̲ˆed
1P	šebbṛ-an = anaġˆd	šebbṛ-an = anaġˆd
2P	šebbṛ-an = awen = d	šebbṛ-an = awen = d
3P	šebbṛ-an = asen = d	šebbṛ-en = t̲en = d

3P verb form *šebbṛ-en* 'they grabbed' with IO/DO + ventive in Hmed/Zerqet

CL	IO + ventive 'they grabbed for...'	DO + ventive 'they grabbed...'	
	Hmed/Zerqet	**Zerqet**	**Hmed**
1S	šebbeṛ-n = ay = d	šebbeṛ-n = ay = d	šebbeṛ-n = ay = d
2MS	šebbeṛ-n = ak̲ = d	šebbeṛ-n = ak̲ = d	šebbeṛ-n = ak = id
2FS	šebbeṛ-n = am = d	šebbeṛ-n = am = d	šebbeṛ-n = akem = d
3MS	šebbeṛ-n = as = d	šebbṛ-en = t̲ˆid̲	šebbṛ-en = t̲ˆid
3FS	šebbeṛ-n = as = d	šebbṛ-en = tˆid̲	šebbṛ-en = ṭˆid
1P	šebbeṛ-n = anaġ = d	šebbeṛ-n = anaġ = d	šebbeṛ-n = anaġ = d
2P	šebbeṛ-n = awen = d	šebbeṛ-n = awen = d	šebbeṛ-n = ak^{w}en = d
3P	šebbeṛ-n = asen = d	šebbṛ-en = t̲en = d	šebbṛ-en = t̲en = d

12.3.2. IO + DO and IO + DO + Ventive

12.3.2.1. IO + DO Clitic Chain

As mentioned previously, the combination of IO + DO clitics is possible only if the DO clitic is constituted by a third person pronoun (3MS, 3FS, or 3P). The following table demonstrates this. When the DO is in the third person, there are two possibilities: IO + DO clitic chain, or DO clitic followed by a prepositional phrase. For non-third person DO clitic pronouns, there is only one possibility, as the IO is obligatorily

expressed by the prepositional phrase.[716] The person of the IO pronoun does not make a difference for the construction.

DO clitic with IO (clitic or prepositional phrase) in Ketama

DO	IO + DO	DO + prep. phrase	Translation
1S	---	i-ṣeṛṛḏ = ay a ġur-un	'He sent me to you (PL)'
2MS	---	i-ṣeṛṛḏ = aḵ a ġur-i	'He sent you (MS) to me'
2FS	---	i-ṣeṛṛḏ = am a ġur-sen	'He sent you (FS) to them'
3MS	i-ṣeṛṛḏ = ay = ṯ	i-ṣeṛṛḏ = iṯ a ġur-i	'He sent it (M)/him to me'
3FS	i-ṣeṛṛḏ = ay = t	i-ṣeṛṛḏ = it a ġur-i	'He sent it (F)/her to me'
1P	---	i-ṣeṛṛḏ = ana a ġur-em	'He sent us to you (FS)'
2P	---	i-ṣeṛṛḏ = awen a ġur-na	'He sent you (PL) to us'
3P	i-ṣeṛṛḏ = ay = ṯen	i-ṣeṛṛḏ = ihen a ġur-i	'He sent them to me'

Third person DO clitics can follow any IO clitic, as the following table demonstrates.[717]

IO + DO clitic chain with the verb *i-kka* 'he gave' (Ketama/Hmed/Zerqet)

IO	+ 3MS:DO K/H/Z	+ 3FS:DO K/Z	+ 3FS:DO H	+ 3P:DO K/H/Z
1S	i-kkaˆy = ṯ	i-kkaˆy = t	i-kkaˆy = ṭ	i-kkaˆy = ṯen
2MS	i-kkaˆḵ = ṯ	i-kkaˆḵ = t	i-kkaˆḵ = ṭ	i-kkaˆḵ = ṯen
2FS	i-kkaˆm = ṯ	i-kkaˆm = t	i-kkaˆm = ṭ	i-kkaˆm = ṯen
3S	i-kkaˆs = ṯ	i-kkaˆs = t	i-kkaˆs = ṭ	i-kkaˆs = ṯen
1P	i-kkaˆnaġ = ṯ (H) i-kkaˆnaḫˆṯ (K/Z) i-kkaˆnaˆḫ (K)	i-kkaˆnaḫˆt (K/Z), i-kkaˆnaˆḫ (K)	i-kkaˆnaġˆṭ	i-kkaˆnaġ = ṯen (H) i-kkaˆnaḫˆṯen (K/Z) i-kkaˆnaḫˆḫen (K)
2P	i-kkaˆwen = ṯ	i-kkaˆwen = t	i-kkaˆwen = ṭ	i-kkaˆwen = ṯen
3P	i-kkaˆsen = ṯ	i-kkaˆsen = t	i-kkaˆsen = ṭ	i-kkaˆsen = ṯen

[716] The pronoun can be either a pronominal suffix, e.g. *a ġur-es* 'to(wards) him/her', or an independent pronoun (after the Dative preposition *i*), e.g. *i netta* 'to/for him'.

[717] As mentioned previously, in Ketama, after an IO clitic, 3MS:DO *ṯ* can become *t*, thus merging with the 3FS:DO, especially in the Sahel dialect. The distinction between genders is normally preserved in Beni Aisi. The table lists forms as found in Beni Aisi dialect of Ketama.

12.3.2.2. IO + DO + Ventive Clitic Chain

The following table demonstrates the forms with the three clitics in a clitic chain. In Ketama, when the 3S:DO clitic is followed by the ventive, the gender of the pronoun is distinguished due to the distinct form of the ventive (cf. Section 14.2.1.1). In Hmed and Zerqet, the forms of the 3S:DO clitics themselves are distinct, while the ventive has the same form (Zerqet *id̲*, Hmed *id*).

IO + DO + ventive with the verb *i-kka* 'he gave' in Ketama and Zerqet

IO	**+ 3MS:DO + VC K/Z**	**+ 3FS:DO + VC K**	**+ 3FS:DO + VC Z**	**+ 3P:DO + VC K/Z**
1S	i-kka = y = ṯˆid̲	i-kkaˆy = ṯˆed	i-kkaˆy = tˆid̲	i-kkaˆy = ṯen = d
2MS	i-kkaˆk̲ = ṯˆid̲	i-kkaˆk̲ = ṯˆed	i-kkaˆk̲ = tˆid̲	i-kkaˆk̲ = ṯen = d
2FS	i-kkaˆm = ṯˆid̲	i-kkaˆm = ṯˆed	i-kkaˆm = tˆid̲	i-kkaˆm = ṯen = d
3S	i-kkaˆs = ṯˆid̲	i-kkaˆs = ṯˆed	i-kkaˆs = tˆid̲	i-kkaˆs = ṯen = d
1P	i-kkaˆnaḫˆṯˆid̲ (K/Z) i-kkaˆnaḫˆḫˆid̲ (K)	i-kkaˆnaḫˆṯˆed i-kkaˆnaḫˆḫˆed	i-kkaˆnaḫˆtˆid̲	i-kkaˆnaḫˆṯen = d (K/Z) i-kkaˆnaḫˆḫen = d (K)
2P	i-kkaˆwen = ṯˆid̲	i-kkaˆwen = ṯˆed	i-kkaˆwen = tˆid̲	i-kkaˆwen = ṯen = d
3P	i-kkaˆsen = ṯˆid̲	i-kkaˆsen = ṯˆed	i-kkaˆsen = tˆid̲	i-kkaˆsen = ṯen = d

IO + DO + ventive with the verb *i-kka* 'he gave' in Hmed

IO	**+ 3MS:DO + VC**	**+ 3FS:DO + VC**	**IO + 3P:DO + VC**
1S	i-kkaˆy = ṯˆid	i-kkaˆy = ṭˆid	i-kka = y = ṯen = d
2MS	i-kkaˆk̲ = ṯˆid	i-kkaˆk̲ = ṭˆid	i-kka = k̲ = ṯen = d
2FS	i-kkaˆm = ṯˆid	i-kkaˆm = ṭˆid	i-kka = m = ṯen = d
3S	i-kkaˆs = ṯˆid	i-kkaˆs = ṭˆid	i-kka = s = ṯen = d
1P	i-kkaˆnaġ = ṯˆid	i-kkaˆnaġ = ṭˆid	i-kka = naġ = ṯen = d
2P	i-kkaˆwen = ṯˆid	i-kkaˆwen = ṭˆid	i-kka = wen = ṯen = d
3P	i-kkaˆsen = ṯˆid	i-kkaˆsen = ṭˆid	i-kka = sen = ṯen = d

12.4. Contexts that Cause Clitic Fronting

12.4.1. Introduction

As mentioned above, in specific contexts, the verbal clitics are found in the preverbal position. Depending on the context and the dialect, clitic fronting can be obligatory or optional. For example, some conjunctions only optionally attract clitics. The irrealis marker *a(d)*, the future marker *(ma)š-a(d)*, and the negative particles obligatorily attract clitics, except for the negative *(u) la* used with the Imperfective verb forms in Hmed and Taghzut varieties. Within Ketama, clitic fronting occurs regardless of the verb mood/aspect in Beni Aisi and Beni Hmed dialects. The Sahel dialect is different in that it allows for postverbal clitics also in Imperfective Negative (and Imperative Negative, which is based on the Imperfective stem of the verb), reminiscent of Taghzut and Hmed. Otherwise, clitic fronting is predictable.

In what follows, first, the different syntactic contexts which cause clitic fronting are listed. Afterwards, more details for each context and examples are provided. The following syntactic contexts cause clitic fronting:

1) preverbal particles (irrealis, future, negation);
2) relativization (regardless of the presence of the relative marker);
3) clefts (a subtype of relative clauses);
4) questions with question words (a subtype of cleft sentences);
5) subordinate clauses with some conjunctions.

Only complete clitic fronting is discussed in this section. For examples of partial clitic fronting and clitic repetition in Ketama, see Chapter 13.

12.4.2. Preverbal Particles causing Attraction

Clitic fronting takes place following the preverbal particles such as the irrealis *a(d)*, future *(ma)š-a(d)*, and negative *u*, e.g.

After the future *š-a*:

IO clitic

(31) *š-a ˆs =i-n* (K)
š-a ˆs =y-ini (H)
FT-NR ˆ3S:IO = 3MS-say:A
'He will tell him/her.'

DO clitic

(32) *š-a* *hen=* *t-ešš* (K)
š-a *hen=* *t-ečč* (H)
š-a *ṯen=* *t-ečč* (Z)
FT-NR 3P:DO=3FS-eat:A
'She will eat them.'

Ventive clitic

(33) *š-a* *d=* *i-ffaġ* (K/H/Z)
FT-NR VC= 3MS-exit:A
'He will go out.'

After the negative particle *u*:

IO clitic

(34) *u* *ˆs* *=i-nna* *š* (K/H/Z)
NEG ˆ3S:IO= 3MS-say:P NEG
'He did not tell him/her.'

DO clitic

(35) *u* *h=* *i-šša* *š* (K)
u *t=* *i-čča* *š* (H)
u *ṯ=* *i-čča* *š* (Z)
NEG 3MS:DO=3MS-eat:P NEG
'He did not eat it (M).'

DO + Ventive

(36) *u* *hen* *=d* *=i-wwi* *š* (K)
u *tn* *ˆid* *=i-wwi* *š* (T)
u *hen* *=d* *=i-ggʷi* *š* (H)
u *ṯen* *=d* *=i-wwi* *š* (Z)
NEG 3P:DO =VC=3MS-take:P NEG
'He has not brought them.'

IO + DO + VC

(37) *u* *ˆs* *=tn* *ˆid* *=i-wwi* *š* (T)
u *ˆs* *=en* *=d* *=i-ggʷi* *š* (H)
u *ˆs* *=ṯen* *=d* *=i-wwi* *š* (Z)
NEG ˆ3S:IO =3P:DO=VC=3MS-take:P NEG
'He has not brought them to him/her.'

Combination of the negative particle and the future particle:[718]

(38) *(-)* *maš* *ˆa* *ˆwen=* *šš-aġ* *š* (K)
(u) *maš* *ˆa* *ˆkun=* *čč-aġ* *š* (H)
u *maš* *ˆa* *ˆwen=* *čč-aġ* *š* (Z)
NEG FT ˆNR ˆ2P:DO= eat:A-1S NEG
'I will not eat you (PL).'

The prohibitives in Ketama have a special structure, as the prohibitive negator *i* cannot be followed by a clitic. In this case, the structure is *u* + CLITIC + *i* + VERB + *ši*, cf. Section 13.4.2.

With Imperfective verb forms, Taghzut and Hmed varieties use a specialized negator *la*, or the combination of *u* and *la*. In such contexts, clitic fronting is optional in these varieties (cf. Section 12.5 on Taghzut). In other varieties, following the negator *u*, clitic fronting is obligatory, regardless of the verb aspect. For example:

DO

(39) (a) *u* *t=* *ẓẓaṛ-aġ* *š* (K)
(u)la *ṭ=* *ẓẓaṛ-aġ* *š* (H)
u *t=* *tẓaṛay-aġ* *š* (Z)
NEG 3FS:DO= see:I-1S NEG
(b) *(u)la* *ẓẓaṛ-aġ* *=ṭ* *š* (H)
NEG see:I-1S =3FS:DO NEG
'I don't see her.'

Ventive

(40) (a) *u* *d=* *i-teffaġ* *š* (K)
(u)la *d=* *i-ṭeffaġ* *š* (H)
NEG VC= 3MS-exit:I NEG
(b) *(u)la* *y-ṭeffġ* *=id* *š* (H)
NEG 3MS-exit:I =VC NEG
'He does not go out.'

[718] As mentioned previously, in Ketama, the negation particle is absent in such contexts, while in Hmed, it is optional. The negation marker is usually present also in combination with *(ma)š-a(ḍ)* in Zerqet.

12.4.3. Relativization

12.4.3.1. Introduction

Different Berber varieties mark relative clauses differently. The widespread relative markers in Berber are the elements *a, ay*, or *i*, which have been analyzed differently (cf. Kossmann 2013a: 386-388). Galand (e.g. 2010: 155–6) uses the term *supports de détermination* ('demonstrative supports') for such elements. In his analysis, the element *a(y)* or *i* is a type of pronoun whose function is to host a modifier which cannot function on its own. These modifiers include relative clauses, as well as demonstrative clitics.

In Ketama, the relative marker *a* is obligatory in all types of relative constructions. In Hmed and Zerqet, the relative marker is optional, especially when the nominal clitic (such as the anaphoric *nna*) is present.[719] As mentioned previously (cf. Section 12.2), the obligatoriness of the relative marker has consequences for the analysis of the clitic fronting and the identification of the clitic host.

Clitics are normally fronted in relative clauses across Senhaja (except for Hmed), with or without the relative marker, as well as in related constructions, such as clefts. Interrogatives are discussed separately below. The following is an example of a subject relative clause. In subject relative clauses, in most Senhaja varieties, the use of the relative form of the verb is required. In Hmed, however, the use of the relative form is optional, and the finite form of the verb can be used as well. Clitics are obligatorily fronted in such contexts in Ketama and in Zerqet. In Hmed, clitics are obligatorily fronted in construction (*a*), with a relative form of the verb (with or without the relative marker), but only optionally fronted in a construction with a finite form of the verb. The variant *(a)* and *(b)* are more frequent than *(c)* in Hmed.

(41)	(a)	*argaz(=aḏin)*	*a*	*d=*	*i-ḵešm-en*	(K)
		man(=DIST:SG)	RM	VC=	RF-enter:P-RF	
		aryaz=nna	*(na)*	*d=*	*i-ḵešm-en*	(H)
		aryaz=nna		*d=*	*i-ḵešm-en*	(Z)
		man =ANP	(RM)	VC=	RF-enter:P-RF	
	(b)	*aryaz(=nna)*	*na*	*y-ḵešm*	*=id*	(H)
		man(=ANP)	RM	3MS-enter:P	=VC	

[719] The absence of the relative marker has no consequences for the clitic fronting in relative clauses in Zerqet. In Hmed, the use of the relative marker can trigger clitic fronting.

(c) *aryaz(=nna)* *na* *d=* *iḵšem* (H)
man(=ANP) RM VC=3MS-enter:P
'That man who entered (here)...'

The following is an example of a clefted construction.[720] Here, the same rules apply.

(42) (a) *baba* *a* *d=* *i-ḵešm-en* (K/H/Z)
baba *na* *d=* *i-ḵešm-en* (H/Z)
father:my RM VC= RF-enter:P-RF
(b) *baba* *na* *y-ḵešm* *=id* (H)
father:my RM 3MS-enter:P =VC
(c) *baba* *na* *d=* *i-ḵšem* (H)
father:my RM VC= 3MS-enter:P
'It is my father who entered (here).'

12.4.3.2. Affirmative Contexts

Clitic fronting takes place in relative clauses regardless of the presence of the relative marker (which is optional in Zerqet), and whether the following verb form is a relative form (cf. Section 3.4.3), used in subject relatives, or a finite form, used in other contexts.

Subject relative

(43) (a) *irgazen* *a* *d=* *i-tuḏu-n* (K)
men RM VC= RF-go:I-RF
iryazen *=nna* *d=* *i-ɛeddu-n* (H/Z)
men =ANP VC= RF-go:I-RF
(b) *iryazen* *=nna* *(na)* *ɛeddu-n* *=d* (H)
men =ANP RM go:I-3P =VC
(c) *iryazen* *=nna* *(na)* *d=* *ɛeddu-n* (H)
men =ANP RM VC= go:I-3P
'Men who come here...'

(44) (a) *ẓ̣ra-n* *argaz* *a* *hn=* *i-wwṯ-en* (K)
ẓ̣ra-n *aryaz* *na* *hn=* *i-wwṯ-en* (H)
ẓ̣ra-n *aryaz* *na* *ṯn=* *i-wwṯ-en* (Z)
see:P-3P man:EL RM 3P:DO=RF-hit:P-RF

[720] For a definition of a cleft construction, see e.g. Payne 1997: 278.

(b) *ẓ̣ra-n* *aryaz* *na* *y-uwṯ* =*iṯen* (H)
see:P-3P man:EL RM 3MS-hit:P=3P:DO
(c) *ẓ̣ra-n* *aryaz* *na* *hn*= *i-wweṯ* (H)
see:P-3P man:EL RM 3P:DO=3MS-hit:P
'They saw the man that hit them.'

DO relative

(45) (a) *argaz* *a* *d*= *uwi-ġ* (K)
man RM VC= take:P-1S
aryaz=*nna* *(na)* *d*= *egg^{w}i-ġ* (H)
aryaz=*nna* *(-)* *d*= *uwi-ġ* (Z)
man =ANP (RM) VC= take:P-1S
(b) *aryaz*=*nna* *(na)* *gg^{w}i-ġ* =*d* (H)
man =ANP (RM) take:P-1S =VC
(c) *aryaz* =*nna* *(na)* *d*= *egg^{w}i-ġ* (H)
man =ANP (RM) VC= take:P-1S
'The man that I brought here...'

12.4.3.3. Negative Contexts

In Ketama and Zerqet, the relative form of the verb is regularly negated. In Hmed, already in the affirmative relative clauses, the use of the relative form of the verb in subject relatives is not obligatory. In the negated contexts, the use of the relative form is even rarer, and the use of non-relative forms is predominant.[721] For example:

(46) *aryaz* *na* *w* *ḏ-sawa* *š* (H)
man:EL RM NEG 3MS-speak:P NEG
'The man who did not speak...'

When the relative marker is found with the negative marker, it precedes it. In Ketama, the negative particle is absent in such contexts (as Ketama avoids multiple preverbal elements). Fronted clitics are found following the negator.

(47) *lmuɛllim* *a* *(-)* *d*= *i-ḵešm-en* *š* (K)
lmuɛllim *na* *w* *d*= *i-ḵešm-en* *š* (H/Z)
teacher RM NEG VC= RF-enter:P-RF NEG
'The teacher who did not enter (here)...'

[721] The same phenomenon is found in Seddat.

In Hmed, with the negated finite verb form, clitic fronting takes place due to the presence of the negator (except the Imperfective Negative, where clitic fronting is optional with the negator *(u)la*). Compare:

Perfective Negative (clitic fronting is obligatory):

(48) *lmuɛllim* *na* *w* *d=* *i-k̲šem* *š* (H)
teacher RM NEG VC= 3MS-enter:P NEG
'The teacher who did not enter (here)...'

Imperfective Negative (clitic fronting is optional):

(49) (a) *lmuɛllim na* *(w)la* *d=* *i-k̲ečč̌em* *š* (H)
teacher RM NEG VC= 3MS-enter:I NEG
(b) *lmuɛllim na* *(w)la* *y-k̲ečč̌m* *=id* *š* (H)
teacher RM NEG 3MS-enter:I=VC NEG
'The teacher who does not enter (here)...'

In the following example (Hmed/Zerqet), the indefinite pronoun *a, ay* (cf. Section 8.5) is the head of the relative. The same element can function as an interrogative (Zerqet 'what, who', Hmed 'what', cf. below).

(50) *i-degg* *a=nna* *ˆ(a)s=* *qqaṛ-en* (Z)
i-ṭegg *a(y=nna)* *ˆ(a)s=* *qqaṛ-en* (H)
3MS-do:I NDF=ANP ˆ3S:IO= say:I-3P
'He does what they tell him.'

12.4.4. Content Questions

There are two forms of interrogatives: free forms, used independently, and forms used with the following (relative) clauses. Forms used with the relative clauses are based on the free forms, but can be clipped (cf. Section 12.4.4.1 for a list). Clitic fronting can (optionally) take place in questions with interrogatives in Hmed and Zerqet. There are three constructions in Hmed: 1) with a relative marker and clitic fronting; 2) without a relative marker and with clitic fronting; and 3) without a relative marker and with postposed clitics. Only one construction is used in Ketama, corresponding to type 1 in Hmed: with a relative marker and clitic fronting. The remaining two constructions are found in Zerqet (type 2, with a clitic fronting, and type 3, without a clitic fronting,

both without a relative marker). There are two types of interrogatives: simple (composed of a single word), discussed in Section 12.4.4.1, and complex (prepositional), consisting of a pronominal form with a preposition, discussed in Section 12.4.4.2. For a list of prepositional interrogatives, cf. Section 9.5.

In yes/no questions, there is no clitic fronting. The (optional) presence of the question markers *waš* or *ka* does not influence clitic fronting, e.g.

(51) *(ka) i-kk =as =ṯen?* (K/H/Z)
(Q) 3MS-give:P=3S:IO =3P:DO
'Did he give them to him/her?'

(52) *(waš) ṯ-zzenz-et ˆten?* (H/Z)
(waš) h-zzenz-et ˆten? (K)
(Q) 2-sell:P-2S ˆ3P:DO
'Did you sell them?'

12.4.4.1. Simple Interrogatives

The structure of the interrogatives (non-subject relatives)

In Ketama, all question words are followed by the relative marker *a*, and clitic fronting is obligatory. Some question words end in *-a* (which originally could have been the relative marker), so the use of the relative marker following them is hidden. Also, the relative marker *a* can be fused with the fronted IO clitics (such as 3S:IO *as*). Nevertheless, in contexts which exclude the coalescence of two vowels, the relative marker is present in Ketama, and hence, we conclude, that it must be underlyingly present in such constructions. This is not the case in Hmed and Zerqet, where two major constructions are possible: with the fronted clitics, and with postposed clitics. In Hmed, there is a tendency to use fronted clitics when there is a relative marker (*a* or, more rarely *na*), while in Zerqet, the relative marker is always absent. Nevertheless, even in the absence of the relative marker, clitic fronting can still take place in Hmed in non-subject relatives. In subject relatives, there are three possible constructions in Hmed, depending on whether the relative or the finite verb form is used.

The following example illustrates the constructions with the question word *fuqaš* (K/H/Z) 'when?'[722]

[722] Besides *fuqaš*, there is also *fawyaḫ* ~ *maywaḫ* (Ketama), and *faywaḫ* (Ketama/Hmed). In Zerqet, *fuqaš* is used most frequently, and *fayaḫ* is rare.

(53) (a) *fuqaš* *a* *d=* *i-rkem?* (K)
fuqaš *(a)* *d=* *i-gg^{w}ed̠?* (H)
fuqaš *(-)* *d=* *i-wwed̠?* (Z)
when RM VC= 3MS-arrive:P
(b) *fuqaš* *i-gg^{w}d̠* *=id?* (H)
fuqaš *i-wwd̠* *=id?* (Z)
when 3MS-arrive:P =VC
'When did he arrive (here)?'

The same constructions are found with the question word 'where?' (Ketama *mani*, can be shortened to *m(a)-* before the relative *a*, Hmed/Zerqet *ani*), although the speakers of Hmed and Zerqet indicate that the variant with fronted clitics is more frequent.

(54) (a) *m(ani)* *a* *d=* *i-rkem?* (K)
ani *(a)* *d=* *i-gg^{w}ed̠?* (H)
ani *(-)* *d=* *i-wwed̠?* (Z)
where RM VC= 3MS-arrive:P
(b) *ani* *i-gg^{w}d̠* *=id?* (H)
ani *i-wwd̠* *=id?* (Z)
where 3MS-arrive:P =VC
'Where did he arrive?'

The question 'where from' consists of 'where' (Ketama *mani*, Hmed/Zerqet *ani*) and the Ablative preposition *s* 'from', in varying order (depending on the variety): Ketama *s-mani* (can be shortened to *s-m(a)* before the relative *a*), Hmed/Zerqet *ani-s*, e.g.

(55) (a) *sm(ani)* *a* *d=* *i-wsa?* (K)
anis *(-)* *d=* *i-wsa?* (Z)
from.where RM VC= 3MS-come:P
(b) *anis* *i-wsa* *=d?* (Z)
from.where 3MS-come:P =VC
'From where did he come?'

With *(d̠)amani* (K)/*layn* (H/Z) 'where to?', we find the same types of constructions:

(56) (a) *(d̠)ama(ni)* *a* *t* *ˆuwi-d̠?* (K)
layn *(-)* *t* *ˆuwi-d̠* (Z)
to.where RM 3S:DO ˆ(2)take:P-2S

	layn	*a*	*ṯ*	*ˆṯ-eggʷi-ḏ?* (H)
	to.where	RM	3FS:DO	ˆ2-take:P-2S
(b)	*layn*	*ṯ-uwwiˆ*	*t* (Z)	
	to.where	2-take:P(:2Sˆ)	3FS:DO	
	layn	*ṯ-eggʷi-ṭˆ*	*ˆṭ?* (H)	
	to.where	2-take:P-2Sˆ	3FS:DO	

'Where did you (SG) take it to?'

The independent question word for 'how?' is *kifaš* (a loan from Arabic), while with relative clauses, Hmed and Zerqet usually use *ammeḵ*, and Ketama uses *ḵa*.[723] In Ketama, the final *a* of *ḵa* could originally be a relative marker *a*. In Hmed and Zerqet, it is impossible to see if the relative marker *a* is present before the fronted 3S:IO *as* in the following examples, but since it is generally absent in Zerqet, we assume that it is not there in this variety (and only optionally present in Hmed):

(57) (a)	*ḵ(a)*	*ˆa*	*ˆs=*	*i-gga?* (K)	
	ammeḵ	*(-)*	*as=*	*i-yya* (H)	
	ammeḵ	*(-)*	*as=*	*i-ḡḡa?* (Z)	
	how	RM	3S:IO=	3MS-do:P	
(b)	*ammeḵ*	*i-yya*	*ˆs* (H)		
	ammeḵ	*i-ḡḡa*	*ˆs?* (Z)		
	how	3MS-do:P	ˆ3S:IO		

'How did he do it?'[724]

(58) (a)	*ḵ(a)*	*ˆa*	*ˆs=*	*eqqṛa-n?* (K)
	ammeḵ	*(-)*	*as=*	*eqqaṛ-en?* (H/Z)
	how	RM	3S:IO=	say:I-3P
(b)	*ammeḵ*	*qqaṛ-n*	*=as?* (H/Z)	
	how	say:I-3P	=3S:IO	

'What do they call it?' 'What's it called?', lit. 'How do they say to it?' ('whatchamacallit', a place-holder)

The free interrogative 'how many/much?' is *šḥal*~*šḥa* (< Arabic *šḥal*), which has the same realization (*šḥal*~*šḥa*) in Ketama and Hmed before a relative clause. In Ketama, when the shortened *šḥa* is followed by the relative marker *a*, the two vowels *a* coalesce. In Zerqet, *šḥal* is always shortened to *šḥa* before a relative clause, without the

[723] The question word *ḵa* 'how' is distinguished from the question marker and counterfactual *ka* by spirantization. Cf. Souag 2018: 64.

[724] Lit. 'How did he do to it': the verb 'to do' takes an IO.

following relative marker. The following is an example of a DO relative. In both *(a)* with a fronted clitic and *(b)* with a postposed clitic, a finite verb form is used, unlike in the subject relatives discussed in the following section.

(59) (a) *šḥ(a)* *a* *ˆs=* *t-ḫellṣ-eḏ?* (K)
šḥa *(-)* *ˆs=* *ṯ-ḫellṣ-eḏ?* (H/Z)
how.much RM 3S:IO= 2-pay:P-2S
(b) *šḥa* *ṯ-ḫellṣ-ḏ* *=as?* (H/Z)
how.much 2-pay:P-2S =3S:IO
'How much did you (SG) pay him/her?'

Subject relative interrogatives

In interrogatives which are subject relatives, there are three different constructions in Hmed. In *(a)*, the relative form of the verb with a fronted clitic is used, and the use of the relative marker is optional. In *(b)*, a finite form of the verb is used, with a postposed clitic (and without a relative marker). In construction *(c)*, a finite verb is used, with a fronted clitic (with an optional relative marker). In Ketama, only the first construction (*a*) is used, with a relative form and fronted clitics, and the use of the relative marker is obligatory. In Zerqet, we find construction *(a)* with a relative form and fronted clitics, but without a relative marker. Less frequently, *(b)* is found in Zerqet (with a finite verb and postposed clitics).[725] For example:

With ventive

(60) (a) *šḥ(al)* *a* *d=* *i-rekm-en?* (K)
šḥa(l) *(a)* *d=* *i-ggʷḍ̣-en?* (H)
šḥa *(-)* *d=* *i-wwḍ̣-en?* (Z)
how.much RM VC= RF-arrive:P-RF
(b) *šḥa(l)* *ggʷḍ̣-en* *=d?* (H)
šḥa(l) *wwḍ̣-en* *=d?* (Z)[726]
how.much arrive:P-3P =VC
(c) *šḥa(l)* *(a)* *d=* *eggʷḍ̣-en*? (H)
how.much RM VC= arrive:P-3P
'How many (people) arrived?'

[725] The construction *(c)* with a finite verb and fronted clitics is not found in the Ikherruden dialect of Zerqet, but is considered grammatical in the dialect of Lqitun (without the relative marker).
[726] The speakers from Ikherruden prefer the sentence *šḥa wsa-n=d* (how.much come:P-3P=VC) 'How many came?', but the underlying structure is the same.

With DO

(61) (a) *šḥ(al)* *a* *h=* *i-ẓ̣ra-n?* (K)
šḥa(l) *(a)* *t=* *i-ẓ̣ra-n?* (H)
šḥa *(-)* *ṯ=* *i-ẓ̣ra-n?* (Z)
how.much RM 3MS:DO= RF-see:P-RF

(b) *šḥa(l)* *ẓ̣ra-n* *=ṯ?* (H)
šḥa(l) *ẓ̣ra-n* *=ṯ?* (Z)
how.much see:P-3P =3MS:DO

(c) *šḥa(l)* *(a)* *t=* *eẓ̣ra-n*? (H)
how.much RM 3MS:DO= see:P-3P
'How many (people) saw him?'

Compare the following examples with the same underlying structure, albeit the relative marker *a* fuses with the following *a-* of the IO clitic:

With IO

(62) (a) *šḥa(l)* *a* *ˆs=* *i-qqim-en?* (K)
šḥa *(-)* *ˆs=* *i-qqim-en?* (H/Z)
how.much RM ˆ3S:IO= RF-stay:P-RF

(b) *šḥa* *i-qqim* *=as* (H/Z)
how.much 3MS-stay:P =3S:IO

(c) *šḥa(l)* *a* *ˆs=* *i-qqim?* (H)
how.much RM 3S:IO= 3MS-stay:P
'How much is left for him/her?'

The same is observed in the following set of examples, where a finite or an impersonal verb form can be used in *(b)*:

(63) (a) *šḥ* *a* *ˆk=* *i-ḫeṣṣa-n?* (K)
šḥa *-* *ˆk=* *i-ḫeṣṣ-en?* (H/Z)
how.much RM 2MS:IO= RF-need:P-RF

(b) *šḥa* *(i-)ḫeṣṣ* *=ak?* (H/Z)
how.much (3MS-)need:P =2MS:IO

(c) *šḥa(l)* *a* *ˆk=* *i-ḫeṣṣ?* (H)
how.much RM 2MS:IO= 3MS-need:P
'How much do you need?', lit. 'How much is needed to you (MS)?'

The distinction between subject and non-subject relative clauses is also observed in the questions with the interrogative 'who/what' discussed in the following section.

Interrogatives ‘what’/‘who’

In some Senhaja varieties, including Ketama and Zerqet, the question words for ‘what?’ and ‘who?’ are not distinguished. When used independently, Ketama and Zerqet use *šku(n)* (< Arabic *škun* ‘who?’) in both senses.[727] With a following relative clause, Ketama uses *šk* in both senses, and Zerqet uses the indefinite pronoun *a* (which can be optionally preceded by *šk*). Hmed is different from Ketama and Zerqet, as it uses *šku(n)* only to refer to humans (‘who?’), and *ayɛna* or the borrowed *šnu* to refer to things (‘what?’). With a following relative clause, Hmed uses *šku(n)* in the meaning ‘who?’, and *ayɛna* or the indefinite pronoun *a* to refer to things (‘what?’).

Following the indefinite *a* (Hmed/Zerqet), we assume no relative marker. Therefore, the surface form may be the same in Ketama and Zerqet, but the underlying structure is different. In Ketama, the question word *šk* ‘who/what’ (glossed WH) is obligatorily followed by the relative marker *a*. In Zerqet, on the other hand, the element *a* should be considered an indefinite pronoun ‘who/what’ (glossed NDF). Different from Ketama, *šk* is not obligatory in Zerqet, and *a* can function as the question word. In Hmed, the surface form with the indefinite *a* can be the same as in Zerqet (without the optional *šk*), with the difference that it can only refer to things and not to humans.

Clitic fronting is obligatory in all varieties following *šk a* ‘who/what’ (Ketama), *(šk) a* ‘who/what’ (Zerqet), and *a* ‘what’ (Hmed), but is not obligatory in Hmed following *ayɛna* ‘what’ and *šku(n)* ‘who’, so that the construction *b* (with the postverbal clitics) is only possible in Hmed in the examples that follow.

(64) (a) (1.) *šk a ˆs= eqqṛa-n?* (K)
WH RM ˆ3S:IO= say:I-3P
(2.) *a ˆs= eqqaṛ-en?* (H/Z)
NDF ˆ3S:IO= say:I-3P
(3.) *šk a ˆs= eqqaṛ-en?* (Z)
WH NDF ˆ3S:IO= say:I-3P
(4.) *ayɛna (a) ˆs= eqqaṛ-en?* (H)
what RM ˆ3S:IO= say:I-3P

[727] In Arabic, *škun* is only used to ask about humans (‘who’). In many Berber varieties, however, the question words ‘who?’ and ‘what?’ are not distinguished (cf. Kossmann 2013a: 297). This was probably originally the case in Ketama, as well. Subsequently, in Ketama, the native interrogative ‘who/what’ was replaced by the borrowed *šk(un)* in both meanings. Compare also the situation with the prepositional interrogatives (Section 9.5). In Ghomara, the interrogatives *škun* ‘who?’ and *šenni~šennu~šnu* ‘what?’ are differentiated (Mourigh 2015: 373).

(b) *ayɛna* *qqaṛ-n* =*as?* (H)
what say:I-3P =3S:IO
'What do they say to him/her/it?'

In subject relatives, a relative form of the verb is required in Ketama and Zerqet (and is optionally used in Hmed), and the clitic fronting is obligatory in this case (example *a*). In Hmed, a finite verb form can be used, with postposed clitics (example *b*) or with fronted clitics following the relative marker (example *c*, less frequent).

(65) (a) *šk* *a* *d*= *i-derdib-en?* (K)
WH RM VC= RF-knock:I-RF
šku(n) *(a)* *d*= *i-ṭqerqab-en?* (H)
who RM VC= RF-knock:I-RF
(šk) *a* *d*= *i-tqerqab-en?* (Z)
WH NDF VC= RF-knock:I-RF
(b) *šku(n)* *i-ṭqerqab* =*id?* (H)
who 3MS-knock:I =VC
(c) *šku(n)* *a* *d*= *i-ṭqerqab?* (H, less frequent)
who RM VC= 3MS-knock:I
'Who is knocking?'

(66) (a) *šk* *a* *t*= *i-gga-n?* (K)
WH RM 3FS:DO= RF-do:P-RF
šku(n) *(a)* *ṭ*= *i-yya-n?* (H)
who RM 3FS:DO= RF-do:P-RF
(šk) *a* *t*= *i-ḡḡa-n?* (Z)
WH NDF 3FS:DO=RF-do:P-RF
(b) *šku(n)* *i-yya* =*ṭ?* (H)
who 3MS-do:P =3FS:DO
(c) *šku(n)* *a* *ṭ*= *i-yya?* (H, less frequent)
who RM 3FS:DO= 3MS-do:P
'Who did it?'

(67) (a) *šk* *a* *k*= *i-ġim-en?* (K)
WH RM 2MS:IO= RF-stay:P-RF
a *k*= *i-qqim-en?* (H/Z)
NDF 2MS:IO= RF-stay:P-RF

(šk) *a* *ˆk̲=* *i-qqim-en?* (Z)
WH NDF ˆ2MS:IO= RF-stay:P-RF
ayɛna *(a)* *ˆk̲=* *i-qqim-en?* (H)
what (RM) ˆ2MS:IO= RF-stay:P-RF

(b) *ayɛna* *i-qqim* *=ak̲?* (H)
what 3MS-stay:P =2MS:IO

(c) *ayɛna* *a* *ˆk̲=* *i-qqim?* (H, less frequent)
what RM ˆ2MS:IO= 3MS-stay:P
'What is left for you (MS)?'

The following examples show that there is a difference between 'who' and 'what' in Hmed, unlike in Ketama and Zerqet:

Ketama/Zerqet ('who/what'):

(68) *šk* *a* *d=* *i-ḥsi-n?* (K)
WH RF VC= RF-fall:P-RF
(šk) *a* *d=* *i-bḍa-n?* (Z)
WH NDF VC= RF-fall:P-RF
'Who fell?'/'What fell?'

Hmed ('who' ≠ 'what'):

(69) (a) *šku(n)* *(a)* *d=* *i-ḥsi-n?* (H)
who RF VC= RF-fall:P-RF

(b) *šku(n)* *i-ḥsi* *=d* (H)
who 3MS-fall:P =VC
'Who fell?'

(70) (a) *a* *d=* *i-ḥsi-n?* (H)
NDF VC= RF-fall:P-RF
ayɛna *d=* *i-ḥsi-n* (H)
what VC= RF-fall:P-RF

(b) *ayɛna* *i-ḥsi* *=d* (H)
what 3MS-fall:P =VC
'What fell?'

A list of simple interrogatives

The following table lists simple interrogatives in three Senhaja varieties, in two contexts: 1) independent (free interrogatives), and 2) before a relative clause, and indicates if the clitic fronting takes place following them. The sign (+) indicates that the clitic fronting is obligatory, (-) indicates that the clitic fronting does not take place, and (+/-) indicates that the clitic fronting is optional. It must be kept in mind that the clitic fronting is not caused by the interrogative itself. In Ketama, all interrogatives before a relative clause are followed by the relative marker *a*, which causes clitic fronting. In Hmed, the relative marker *a* is optional. In the presence of the relative marker, clitic fronting takes place. In the absence of the relative marker, clitic fronting is optional. In Zerqet, the interrogatives are not followed by the relative marker. As in Hmed in the absence of the relative marker, clitic fronting is optional in Zerqet.

Simple interrogatives in Ketama, Hmed, and Zerqet

Transl.	Free forms	Forms with a relative clause			Fronting		
		K	H	Z	K	H	Z
what	šku(n) (K/Z), (a) šnu (H), ayɛna (H)	šk a	a(y), ayɛna	a	+	+, +/-	+
who	šku(n) (K/H/Z)	šk a	šku(n)	a	+	+/-	+
how much, how many	šḥa(l) (K/H/Z)	šḥ(al) a	šḥa(l)	šḥa(l)	+	+/-	+/-
why[728]	i men (K), ɛlaš (H/Z), ḫ emmen (H)	(i men a)	ɛlaš (ḫ emmen)	ɛlaš	+	+/-	+/-
how	kifaš (K/H/Z), ammeḵ (H/Z)	ḵ(a) a	ammeḵ, kifaš	ammeḵ, kifaš	+	+/-	+/-
when	fuqaš (K/H/Z), faywaḫ (K/H)	fuqaš a, faywaḫ a	fuqaš, faywaḫ	fuqaš	+	+/-	+/-
where	mani (K), ani (H/Z)	m(ani) a	ani	ani	+	+/-	+/-
where from	s-mani (K), ani-s (H/Z)	sm(ani) a	ani-s	ani-s	+	+/-	+/-
where to	ḏamani (K), layn (H/Z)	ḏam(ani) a	layn	layn	+	+/-	+/-

[728] In the sense 'why?', Ketama uses the prepositional interrogative *i men*. Hmed uses either the borrowed *ɛlaš* or the prepositional interrogative *ḫ emmen* (lit. 'on what?').

12.4.4.2. Prepositional Interrogatives

See Section 9.5 for a list of prepositional interrogatives in Senhaja. Simple and prepositional interrogatives have the same rules for the clitic fronting in the following relative clause. In Ketama, there is only one construction: with the relative marker *a*, and obligatory clitic fronting. In Hmed, there are two constructions: with a clitic fronting (following an optional relative marker *a*, rarely *na*), and without a clitic fronting (without a relative marker). In Zerqet, there are also two constructions, with preverbal or postverbal clitics, both without a relative marker. The interrogatives used before a relative clause have the same form as free interrogatives, with the difference that they are obligatorily followed by a relative marker *a* in Ketama, before which the interrogative pronoun *mmen* 'who/what' can be clipped to *mm-* (the final *-en* is optional). Examples follow.

The question 'in who/what' (e.g. 'in what transport') is *g emmen* (K/H), *mi-ḏi* (H), and *gi-miḏi* (Z):

(71) (a) (1.) *g emm(en) a d ˆusi-ḏ?* (K)
g mˆ a d ˆusi-ḏ? (K)
in WH RM VC ˆ(2)come:P-2S
(2.) *g emmen (a) d ˆeddi-ḏ?* (H)
in WH RM VC ˆ(2)go:P-2S
(3.) *mi-ḏi (a) d eddi-ḏ?* (H)
WH-in RM VC ˆ(2)go:P-2S
(4.) *gi-miḏi d ˆusi-ḏ?* (Z)
in-WH VC ˆ(2)come:P-2S
(b) (1.) *g emmen ṯ-eddi ˆd?* (H)
in WH 2-go:P(:2Sˆ) VC
(2.) *mi-ḏi ṯ-eddi ˆd?* (H)
WH-in 2-go:P-2S ˆVC
(3.) *gi-miḏi ṯ-usiˆ d?* (Z)
in-WH 2-come:P(:2Sˆ) VC
'In what (e.g. in what transport) did you come?'

As pointed out in Section 9.5, the prepositional interrogative 'for who/what' is homonymous with 'in who/what' in Hmed and Zerqet, but distinguished in Ketama: *iḏ emmen* (K), *g emmen* ~ *mi-ḏi* (H), *gi-miḏi* (Z). In Ketama, the question 'with/and who?' is homonymous with 'for who?', but the constructions are different. The interrogative

iḏ emmen ‘for who?’ can start the sentence, while *iḏ emmen* ‘and who?’ cannot (it must follow an NP). Compare:

(72) *iḏ* *emm(en)* *a* *h-esġi-ḏ* *lkaḍu* *=yaḏ* (K)
for WH RM 2-buy:P-2S present =PROX:SG
‘For who did you buy this present?’

(73) *netta* *iḏ* *emm(en)* *a* *d=* *i-rkem?* (K)
he and WH RM VC= 3MS-arrive:P
‘With who did he arrive?’ (Lit. ‘He and/with who did arrive?’)

The interrogative ‘why?’, ‘on what?’

In Hmed, for ‘why’, both the prepositional interrogative *ḫ emmen* (lit. ‘on what’) and the borrowed *ɛlaš* are used. The interrogative does not influence the position of the clitic:

(74) (a) *ḫ emmen* *(~ɛlaš)* *(a)* *t=* *t-ečči-ḏ?* (H)
on WH (~why) (RM) 3MS:DO ˆ2-eat:P-2S
(b) *ḫ emmen* *(~ɛlaš)* *ṯ-ečči-* *ˆt?* (H)
on WH (~why) 2-eat:P(-2S) ˆ3MS:DO
‘Why did you (SG) eat it (M)?’

In Zerqet, usually, the borrowed *ɛlaš* is used for ‘why’. Clitics can be fronted or left posposed:

(75) (a) *ɛlaš* *tˆ* *ˆečči-ḏ?* (Z)
why 3MS:DO (ˆ2:)eat:P-2S
(b) *ɛlaš* *ṯ-ečči-* *ˆt?* (Z)
why 2-eat:P(-2S) ˆ3S:DO
‘Why did you (SG) eat it?’

12.4.5. Clitic Fronting after some Conjunctions

Clitic fronting can take place after some conjunctions (cf. below for a list of conjunctions), such as *ani* (H/Z), *mani* (K) ‘where’, and *ga* (K) ‘when’. After *ga* ‘when’, clitic fronting is obligatory in Ketama. The conjunction *ga* ‘when’ probably contains the relative marker *a*, i.e. it can be analyzed as follows: *gˆa* ‘when’ + ‘relative marker’.[729] For example:

[729] In Hmed, the conjunction *ʒgʷami* is optionally followed by the relative marker *a*.

(76) *argaz* =*aḏ* *gˆ* *a* *ˆs*= *enni-ġ* *lheḏra*=*yaḏ*
man:EL =PROX:SG when^ RM ^3S:IO= say:P-1S talk =PROX:SG
i-dda (K)
3MS-go:P
'That man, when I told him this (speech), went.'

In most other Senhaja varieties, the conjunction 'when' (Taghzut *zgansi*, Hmed *zg^{w}ami*, Zerqet *zgamis*) only optionally attracts clitics.[730] Other examples follow.

(77) (a) *gˆ* *a* *h*= *eẓri-ġ* (K)
zg^{w}ami *(a)* *t*= *ezri-ġ* (H)
zgamis *(-)* *ṯ*= *eẓri-ġ* (Z)
when RM 3MS:DO =see:P-1S
(b) **ga* *ẓri-ḫ* =*ṯ* (*K)
zg^{w}ami *zri-ġ* =*ṯ* (H)
zgamis *ẓri-ḫ* =*ṯ* (Z)
when see:P-1S =3MS:DO
'When I saw him...'

Clitic fronting does not occur following some other conjunctions, e.g. following the conjunction *ḥetta* (pan-Snh.) 'until'. In Ketama, the conjunction *ḥetta* 'until' is usually realized as *ḥettani* or *ḥettayni*.[731] For example:

(78) *i-ġim* *maši* *ḥettani* *i-ẓṛa* =*t* (K)
i-qqim *maši* *ḥetta* *i-ẓṛa* =*ṭ* (H)
i-qqim *mašši* *ḥetta* *i-ẓra* =*t* (Z)
3MS-stay:P walking:MS until 3MS-see:P =3FS:DO
'He kept walking until he saw her.'

The conditional (hypothetical) 'if' expresses a hypothetical outcome of the situation: *matta* (K/Z), *manṭṭa* (H). The following verb can be in the Aorist, Perfective, or Imperfective. This conjunction causes no clitic fronting in Ketama, while clitics may be optionally fronted in Hmed/Zerqet:

[730] The initial *z(g)* is probably the relic of the Ablative preposition 'from'. In Ketama, *ga* 'when' can be also preceded by *z*: *zga* 'since, when'.
[731] It is thus distinguished from the preposition *ḥetta (ar)* 'until', cf. Section 9.3.2.4. The final element *ni* in *ḥettani* may be from Arabic. In Arabic, *'an* (and variants) is a complementizer (comparable to the English 'that'), so that *ḥettaˆni* is literally 'until that'.

(79) (a) *matta* *i-dda* =*d,* *š-a* *y-en* *ši* *haža* (K)
manṭṭa *i-dda* =*d,* *š-a* *ḏy-ini* *ši* *haža* (H)
if 3MS-go:P =VC FT-NR 3MS-say:A some thing
matta *i-wsa* =*d* *š-aḏ* *i-(i)ni* *ši* *haža* (Z)
if 3MS-come:P =VC FT-NR 3MS-say:A some thing

(b) *manṭṭa* *(a)* *d*= *i-da,* *š-a* *ḏy-ini* *ši* *haža* (H)
if (RM) VC= 3MS-go:P FT-NR 3MS-say:A some thing
matta *d*= *i-wsa,* *š-aḏ* *i-(i)ni* *ši* *haža* (Z)
if VC= 3MS-come:P FT-NR 3MS-say:A some thing
'If he comes, he will say something...'

The conjunction *waḫḫa* 'even if, although' triggers no clitic fronting (across Senhaja):

(80) *waḫḫa* *i-ẓṛa* =*ṯ,* *u* *y-enna* *walu* (K)
waḫḫa *i-ẓṛa* =*ṯ,* *uḏ* *i-nna* *walu* (Z)
although 3MS-see:P =3MS:DO NEG 3MS-say:P nothing
'Although he saw him, he didn't tell him anything.'

The conjunction *waḫḫa* 'although' can be optionally followed by *matta* (K/Z)/*manṭṭa* (H) 'if'. In this case (with the two conjunctions), clitics can be fronted in Hmed and Zerqet, but are postverbal in Ketama:

(81) (a) *waḫḫa* *(matta)* *i-dda* =*d,* - *š-a* *y-en* *walu* (K)
waḫḫa *(manṭṭa)* *i-da* =*d,* - *š-a* *ḏy-ini* *walu* (H)
waḫḫa *(matta)* *i-wsa* =*d,* *u* *maš-aḏ* *i-(i)ni* *walu* (Z)
although (if) 3MS-go:P=VC NEG FT-NR 3MS-say:A nothing

(b) *waḫḫa* *manṭṭa* *(a)* *d*= *i-da,* *š-a* *ḏy-ini* *walu*(H)
although if (RM) VC=3MS-come:P FT-NR 3MS-say:A nothing
waḫḫa *matta* *d*= *i-wsa,* *maš-aḏ* *i-(i)ni* *walu* (Z)
although if VC=3MS-come:P FT-NR 3MS-say:A nothing
'Even if he comes, he will say nothing'.

The counterfactual 'if' can be realized as *ka* (K/H), *kʷa* (H), *uka* (K/Z), *luka* (K/T), or *lukan* (K/T/H), all from Arabic *lukan*. *Ka* also functions as a question marker,

synonymous with *waš*, while *kʷa* (H) only functions as a counterfactual.[732] *(L)uka(n)* is obligatory in the protasis, and optional in the apodosis. The apodosis may use the same form of the counterfactual as the protasis, or a more abbreviated form (i.e., the forms do not have to be identical). In the protasis, following the conjunction 'if', the past marker can optionally be used in Ketama and Zerqet. In Hmed, the special past form of 'to be' (*gella*, optionally conjugated) is rare in such contexts, but is grammatical. The counterfactual 'if' does not trigger clitic fronting in any Senhaja variety. The following sentence is an example of a protasis:

(82)	*(l)uka*	*(ara)*	*ddi-ġ*	*=d*	*ar*	*Ṯargiṯ* (K)
	lukan	*(gella)*	*ddi-ġ*	*=d*	*za*	*Ṯargiṯ* (H)
	CF	PST	go:P-1S	=VC	to	Targuist
	uka	*(iža)*	*wsi-ġ*	*=d*	*za*	*Ṯargiṯ* (Z)
	CF	PST	go:P-1S	=VC	to	Targuist
	'If I had come to Targuist,...'					

The following is an apodosis.

(83)	*(u)ka*	*sġi-ġ*	*=as*	*i*	*ṯerbaṯ*	*nn-eḵ*	*lkaḍu* (K/H/Z)
	CF	buy:P-1S	=3S:IO	for	girl:EA	of-2S	present
	'... I would have bought your daughter a present.'						

The following table lists the subordinate conjunctions in three Senhaja varieties, and indicates if the clitic fronting takes place following them.[733] It must be kept in mind that the clitic fronting is not always caused by the conjunction itself. For example, following *ga* 'when', clitic fronting can be caused by the (hidden) relative marker *a* in Ketama. In combination with *bla ma* 'without', clitic fronting is obligatory, as the following verb form is in the Aorist (following the irrealis particle *a(ḏ)*). Similarly, following *qbel ma*, there is a (hidden) irrealis particle *a(ḏ)*, and the following verb form is in the Aorist. Following *qbel u*, clitic fronting takes place because of the negator *u*.

[732] The counterfactual *ka* is distinct from *ḵa* (with a spirantized *ḵ*) 'how' (Ketama).

[733] As with the previous tables (with interrogatives), (+) implies obligatory clitic fronting, (-) no clitic fronting, and (+/-) optional clitic fronting.

Subordinate conjunctions in Ketama, Hmed, and Zerqet

Translation	Forms			Fronting		
	K	**H**	**Z**	**K**	**H**	**Z**
when, since	(z)ga	zg^{w}ami (nami)	(zg)amis	+	+/-	+/-
whenever	fuqaš na ma	fuqaš n(n)a ma	fuqaš na ma	+	+/-	+
without	bla ma (a)	bla ma (a)	bla ma (a)	+	+	+
before	qbel ma (a), qbel u	qbel ma (a), qbel u	qbel ma (a), qbel u	+	+	+
until	ḥetta(ni)	ḥetta	ḥetta	-	-	-
if (hypothetical)	matta	manṭṭa	matta	-	+/-	+/-
if (counterfactual)	(l)uka	(lu)ka(n), k^{w}a	uka	-	-	-
although, even if	waḫḫa	waḫḫa	waḫḫa	-	-	-
although, even if	waḫḫa matta	waḫḫa manṭṭa	waḫḫa matta	-	+/-	+/-

12.5. Clitic Fronting in Taghzut

12.5.1. Introduction

Several Senhaja varieties have divergent clitic behavior with Imperfective Negative verb forms: Taghzut, Seddat, Hmed, Bunsar, and the Sahel dialect of Ketama. In Taghzut and Hmed, as well as in parts of Seddat, the unusual behavior may be linked to the specialized negator *la* (also *ula*) used with the Imperfective. However, in the Sahel dialect of Ketama, in other parts of Seddat, and in Bunsar, clitics can be left postposed with Imperfective verb forms, although these varieties employ the general negator *u*. The prohibitive, which is based on the Imperfective verb stem, also allows for the divergent clitic behavior in these varieties. In most Senhaja varieties with divergent behavior of clitics in the Imperfective, the clitics are normally either left postposed, or fronted together in a clitic chain. Taghzut variety is different, as it allows for many different deviations from the usual model, including the partial clitic fronting and clitic repetition.

Deviations from the usual scheme in Taghzut have a different nature than in Ketama (cf. Chapter 13). Divergent models of clitic behavior that exist in Ketama are ungrammatical in Taghzut, and deviations from the usual scheme that exist in Taghzut are ungrammatical in Ketama. Different from Ketama, Taghzut exhibits no deviations from the usual scheme with the Aorist, but only with the Imperfective Negative, which in Taghzut has a specialized negator *(u)la*. Divergent behavior is also possible in

Imperative Negative, which is based on the Imperfective verb stem. In the context of the Aorist, however, the clitic complex cannot be split, and there is no clitic repetition.

12.5.2. Imperfective Negative

With Imperfective verb forms, clitics behave differently in Taghzut than in other attraction contexts. In Imperfective Negative, Taghzut allows for postverbal clitics (NCF, no clitic fronting), complete clitic fronting (CCF), partial clitic fronting (PCF), and clitic repetition (CR). The following table shows various models for the 3MS Imperfective Negative form of the verb 'to give' in combination with the 3S:IO + 3MS:DO (+ventive): 'He is not giving it (M) to him/her (here)'. The variant with the CCF is not frequent. The NCF scenario is especially frequent with the ventive. Different models might be more frequent depending on several factors, such as a dialect and the age of the informants. In the name of the models, "I" stands for the IO, "D" = DO, "V" = Ventive, and "-" indicates the positing with regard to the verb, e.g. the -ID model stands for the postposed IO + DO (Verb = IO = DO).

The verb 'to give' in 3MS IPF.NEG with 3S:IO + 3MS:DO(+VC) in Taghzut

IO + DO	IO + DO + ventive	Type	Model
ulaˆy-ṭak = as = t̲ š	ulaˆy-ṭak = as = t̲ = id̲ š	NCF	-ID(V)
ulaˆs = t̲ = i-ṭak š	ulaˆs = t̲ = id̲ = i-ṭak š	CCF	ID(V)-
ulaˆs = i-ṭak = it̲ š	ulaˆs = i-ṭak = it̲ = id̲ š ulaˆs = d = i-ṭak = it̲ š	PCF	I-D(V) I(V)-D
ulaˆs = t̲ = i-ṭak = it̲ š	ulaˆs = t̲ = i-ṭak = it̲ = id̲ š	DR	ID-D (ID-DV)
	ulaˆs = t̲ = id̲ = i-ṭak = it̲ š	DR	IDV-D
	ulaˆs = d = i-ṭak = it̲ = id̲ š	VR	IV-DV
	ulaˆs = t̲ = id̲ = i-ṭak = it̲ = id̲ š	DVR	IDV-DV
ulaˆs = t̲ = i-ṭak = as = t̲ š	ulaˆs = t̲ = id̲ = i-ṭak = as = t̲(= id̲) š	ID(V)R	ID(V)-ID(V)

12.5.3. Prohibitive

Prohibitives are special in some parts of Senhaja in that they employ a specialized prohibitive negator *i* (cf. Section 5.2.2.2). In Ketama, the negator *i* is always used with prohibitives, whether they contain a clitic or not. When there is a clitic, Ketama combines the prohibitive *i* with a general negator *u* (cf. Section 13.4.2), so that the scheme is *u* + CLITIC + *i* + VERB + *ši*. This scheme is also found in Seddat and

Taghzut varieties, which do not use *i* as a prohibitive negator outside such contexts. In Taghzut, different from Ketama and Seddat, the *i* is optional, e.g.

(84) *u* *d* *i* *ḳečč̣em* *ši* (S)
u *d* *(i)* *ḳečč̣em* *ši* (T)
NEG VC NEG enter:I:IMP:SG NEG
'Do not give (SG) enter (here)!'

Such constructions can be described as 'separation of the clitic from the verb (SCV)', cf. Section 13.4.2 for Ketama. In such examples, it is not sure to which element the clitic is cliticized: to the preverbal negator *u*, or to the prohibitive *i* and the rest of the verbal complex. In Taghzut, the prohibitive *i* appears most frequently between the ventive clitic *d* and the verb stem (often *ṭ*-initial in the Imperfective because of the Imperfective prefix *ṭ*-), so that *i* serves as a "divider" between the two dentals. For example, in the above example, the use of *i* is optional, while in the following example, it is obligatory:

(85) *u* *d* *i* *ṭak* *š* (T)
NEG VC NEG give:I:IMP:SG NEG
'Do not give (SG) (here)!'

The *i* can also separate the 3S:DO clitic (M *ṯ*, F *ṭ*) from the *ṭ*- of verb stem. Again, in this case, it is obligatory, e.g.

(86) *u* *ˆs* *ṯ* *i* *ṭak* *š* (T)
NEG 3S:IO 3MS:DO NEG give:I:IMP:SG NEG
'Do not give it (M) to him/her!'

When the verb stem is not *ṭ*-initial, the intervening *i* is not required:

(87) *u* *ˆs=* *t=* *eqqaṛ* *š* (T)
NEG ˆ3S:IO= 3FS:DO= say:I:IMP:SG NEG
'Do not say (SG) it (F)!'

To conclude, in Ketama, the two preverbal negators (*u* and *i*) are obligatory in prohibitives when the verb has a clitic. In Taghzut, the negator *i* following the clitic is usually optional. It is frequently used to separate the fronted ventive *d* or 3S:DO clitic

from the Imperfective form of the verb. Its synchronic is morphophonological, e.g. to prevent the assimilation of the 3S:DO and the initial *ṭ-* of the Imperfective.

The following table shows various models for the prohibitive form of the verb 'to give' + 3S:IO + 3MS:DO (+ventive): 'Do not give (SG) it (M) to him/here (here)!'

The prohibitive singular of verb 'to give' with IO + DO(+ventive) in Taghzut

IO + DO	**IO + DO + ventive**	**Type**	**Model**
u ṭak = as = ṯ š	u ṭak = as = ṯ = id̲ š	NCF	-ID(V)
uˆs = ṯ i ṭak š	uˆs = ṯ = id̲ (i) ṭak š	CCF	ID(V)-
uˆs = ṭak = it̲ š	uˆs = ṭak = it̲ = id̲ š	PCF	I-D(V)
uˆs = ṯ i ṭak = it̲ š	uˆs = ṯ i ṭak = it̲ = id̲ š	DR	ID-D (ID-DV)
	uˆs = ṯ = id̲ (i) ṭak = it̲ š		IDV-D
	uˆs = d = i-ṭak = it̲ = id̲ š	VR	IV-DV
	uˆs = ṯ = id̲ = ṭak = it̲ = id̲ š	DVR	IDV-DV
uˆs = ṯ i ṭak = as š		IR	ID-I
uˆs = ṯ i ṭak = as = ṯ š	u = s = ṯ = id̲ = ṭak = as = ṯ(= id̲) š	ID(V)R	ID(V)-ID(V)

With this particular verb (that has the prefix *ṭ-* in the Imperfective), it is not common to have CCF (ID- model) without the intervening prohibitive negator *i*, to avoid the sequence *ṯ* + *ṭ*. However, the CCF (without the intervening *i*) is possible with the 3P:DO clitic. Compare:

(88) *u ˆs ṯ **i** ṭak š* (T)
NEG ˆ3S:IO 3MS:DO NEG give:I:IMP:SG NEG
'Do not give (SG) it (M) to him/her!'

(89) *uˆ s= ṯen= ṭak š* (T)
NEG ˆ3S:IO = 3P:DO give:I:IMP:SG NEG
'Do not give (SG) them to him/her!'

The same is true for the DO repetition: the sequence of *ṯ/ṭ* + *ṭ* is avoided. The solution is either to employ the intervening prohibitive *i*, or a different construction.
Unlike Ketama, Taghzut allows for the repetition of the IO clitic in some circumstances. It can co-occur with the DO repetition, and with the DO + ventive repetition.

Comparison between Imperfective Negative and Prohibitive

The following table compares the constructions with repeated clitics for the two contexts: Imperfective Negative ('He is not giving it (M) to him/her here)' and the prohibitive ('Do not give [SG] it (M) to him/here here!').

IPF.NEG	**IMP.NEG**	**Model**
ulaˆs = t̲ = i-ṭak = as š	uˆs = t̲ = i = ṭak = as š	ID-I
ulaˆs = t̲ = i-ṭak = as = t̲ š	uˆs = t̲ = i = ṭak = as = t̲ š	ID-ID
ulaˆs = t̲ = id̲ = i-ṭak = as = t̲ = id̲ š	uˆs = t̲ = id̲ = i-ṭak = as = t̲ = id̲ š	IDV-IDV

As can be deduced from the table, the difference between 3MS Imperfective Negative and the prohibitive is in the preverbal negator: *ula* the Imperfective Negative vs. *u* in the prohibitive. The 3MS verb prefix *i-* used in Imperfective Negative is paralleled by the intervening negator *i* in the prohibitive.

In some verb forms (second person Imperfective Negative, 2P prohibitive), with the divergent behavior of the clitic complex (PCF: I-D model), the third person DO clitics are *a*-initial (while normally, they are C-initial after the vowel of the verb, or after a consonant of the PNG suffix, and *i*-initial after the consonant of the verb stem), e.g.

(90) (a) *ula ˆs= ṭak-d̲ =at̲ š* (I-D)
NEG ˆ3S:IO= (2:)give:I-2S =3MS:DO NEG
'You (SG) are not giving it (M) to him/her.'

(b) *ula ˆs= ṭak-m =at̲ š* (I-D)
NEG ˆ3S:IO= (2:)give:I-2P =3MS:DO NEG
'You (PL) are not giving it (M) to him/her.'

(c) *u ˆs= ṭak-at̲ =aṭ š* (I-D)
NEG 3S:IO= give:I-IMP:PL =3MS:DO NEG
'Do not give (PL) it (F) to him/her!'

12.6. Conclusions

The verbal clitics can appear in a clitic chain, following or preceding the verb, which is why they are called *verbal satellites*. Clitic mobility distinguishes syntactic (verbal) clitics from prosodic (nominal) clitics. Prepositions with pronominal suffixes and deictic adverbs do not undergo fronting (also known as *attraction*) in Senhaja.

Although the preverbal element acts as an attractor, it is not sure if it also serves as a clitic host. In fact, there are arguments to consider the clitics attached to the verb in either position.

Although it could have been possible to do without the term “clitics” in the description of Berber, this term is useful to cover different bound elements that always occur with a verb and can change position depending on the syntactic conditions. Clitics in Senhaja often occur in P2 (Wackernagel) position. However, the P2 position is not clearly defined, as the preverbal position can be occupied by multiple elements. Another problem is that in Eastern Senhaja (Zerqet), in contexts of relativization, the relative marker is not obligatory, while clitics cannot be attached to the “zero” host. Different analyses have been proposed to explain the rules of clitic behavior in Berber, e.g. that they must attach to functional rather than to lexical categories, and the Clitic-Host inversion takes place when there is no grammatical element in the preverbal position. However, these analyses do not explain why clitics can remain postposed in the presence of some functional categories to the left of the verb (e.g. a past marker). Neither do these analyses explain the divergent clitic behavior in Ketama and in some other Berber varieties, such as partial clitic fronting and clitic repetition.

In unmarked contexts (Perfective, affirmative), clitics follow the verb. When they occur together, the sequence is IO + DO + ventive, where any of the members can be absent. There is allomorphy in DO and ventive combination. In accordance with the Case-Person Constraint, only third person DO clitics can follow an IO clitic. For non-third person DO pronouns, the IO must be expressed by the prepositional phrase.

In specific contexts, clitics are found in the preverbal position. Depending on the context and the dialect, clitic fronting can be obligatory or optional. The following syntactic contexts (can) cause clitic fronting:

1) preverbal particles

The irrealis *aḏ* and the future *(ma)š-aḏ* obligatorily attract clitics. The negator *u* (and variants) usually attracts clitics. In parts of Senhaja, clitic fronting is not obligatory with the Imperfective Negative and prohibitive verb forms.

2) relativization and clefts

Clitic fronting takes place in contexts of relativization (including clefts, which are a subtype of relativization), with an obligatory relative marker *a* in Ketama, and regardless of the presence of the relative marker in Hmed and Zerqet.

3) content questions, simple or prepositional

In Ketama, there is one construction: all questions words are followed by the relative marker *a*, and clitic fronting is obligatory. In Hmed, with fronted clitics, the relative marker is optional, and there is no relative marker with postverbal clitics. In Zerqet, there is no relative marker, and clitics can be optionally fronted. The constructions are the same with most question words. Clitic fronting is obligatory in Hmed and Zerqet following the indefinite pronoun *a* that can function as a question word 'what?', 'who?'.

4) subordinate clauses

Clitic fronting can (optionally) take place after some conjunctions, such as *ani* (H/Z), *mani* (K) 'where'; *zg^{w}ami* (H), *zgamis* (Z) 'when', and is obligatory following Ketama *ga* 'when', which might contain the relative marker *a*. Following *matta* (K/Z), *manṭṭa* (H) 'if (hypothetical), clitics are postposed in Ketama, but may be optionally fronted in Hmed/Zerqet. Other clitics do not cause clitic fronting in any variety, e.g. the counterfactual 'if' (*ka, (l)uka*, from Arabic *lukan*), *ḥetta* 'until', *waḫḫa* 'although'.

Several Senhaja varieties have divergent clitic behavior with Imperfective Negative verb forms: Taghzut, Seddat, Hmed, Bunsar, and the Sahel dialect of Ketama. In Taghzut and Hmed, as well as in parts of Seddat, the unusual behavior may be linked to the specialized negator *la~ula* used with the Imperfective. However, in other parts of Senhaja, clitics can be left postposed also with the general negator *u*. The prohibitive, which is based on the Imperfective, also has divergent clitic behavior, possibly by analogy with the Imperfective, although it uses the general negator *u*. In most Senhaja varieties with divergent behavior of clitics in Imperfective (Seddat, Hmed, Bunsar), the clitics are normally either left postposed, or fronted together in a clitic chain. Taghzut variety is different, allowing for various deviations from the usual model. It is also different from Ketama, where the divergent clitic behavior is related to the nature of the clitics rather than to the verb mood/aspect.

13. Clitic Fronting in Ketama

13.1. Introduction

13.1.1. Types and Models of Clitic Behavior

This chapter is devoted specifically to the behavior of the clitics in Ketama in attraction contexts. It pays special attention to the divergent constructions such as partial clitic fronting (Section 13.2) and ventive repetition (Section 13.3) and attempts to explain how these constructions might have originated. As discussed above, the usual order of the clitics in a clitic chain is: IO + DO + VC. In Ketama, this scheme is usually restricted to the postverbal position (unmarked contexts), so that the model of the clitic behavior in this case is: -IDV.[734]

In attraction contexts, the relative order of the clitics is preserved when the clitics are fronted in other Senhaja varieties. In Ketama, in attraction contexts, various deviations from the usual scheme are found, depending on the kind of the clitics. When a verb form contains a single clitic, it is obligatorily fronted in the attraction contexts (except for the Sahel dialect of Ketama, where clitics can remain postposed in Imperfective Negative and Imperative Negative), so that we find models I-, D-, and V- (all fronted). The combination of a pronominal clitic and the ventive is also normally fronted, yielding models IV- and DV- (Section 13.1.2). When two pronominal clitics occur simultaneously, the clitic complex is usually split, with the IO appearing before the verb, and DO after it (*partial clitic fronting*) (model I-D, Section 13.2). The DO clitic may be (seemingly) repeated, i.e. can appear on both sides of the verb (*clitic repetition*) (Section 13.2.2). However, the fronted DO clitic carries no information about the person, number, and gender, but simply signals the presence of a postverbal DO. In this case, the fronted DO clitic is a petrified element or a dummy DO (in this case, we label the model 'IDt-D', where 'Dt' stands for the dummy DO). Complete clitic fronting is grammatical (model ID-), but not common. When three clitics appear simultaneously, IO and DO clitics are still split, while the ventive clitic is usually repeated: it appears after the IO in the preverbal position, and after the DO in the postverbal position (Section 13.3, model IV-DV). Various other deviations from the usual scheme are possible, depending on various factors.

The major types or schemes of clitic behaviour in Ketama are:

[734] We remind that in the names of models, 'I' stands for the IO, 'D' stands for the DO, and 'V' stands for the ventive, while '-' indicates the position with regard to the verb.

1) “no clitic fronting” (abbreviated here as NCF), normally found in non-attraction contexts, although in the Sahel dialect of Ketama, clitics can remain postposed also in some attraction contexts;[735]
2) complete clitic fronting (abbreviated here as CCF), which is the usual behavior of the clitics in other varieties;
3) partial clitic fronting (abbreviated here as PCF), which is common in Ketama with the combination of the IO (fronted) and the DO (postposed);
4) clitic repetition (abbreviated here as CR), which usually applies to the ventive in the presence of the fronted IO and postposed DO.

There is a hierarchy as to what is found depending on the number and type of the clitics and on the dialect:

1) The IO clitic does not appear postverbally in contexts of attraction, and cannot be repeated in Ketama.
2) The DO clitic, when found in combination with the IO clitic, can be preverbal (CCF: the ID- and IDV- models), postverbal (PCF: the I-D, I-DV, and IV-D models), or (at least seemingly) repeated (CR: the ID-D model).
3) The ventive, when in combination only with the IO clitic, is preverbal (CCF: the IV- model).

- When in combination only with the DO, the ventive is preverbal in Beni Aisi and Beni Hmed (CCF: the DV- model). In Sahel and Lmekhzen, it can also be postverbal (PCF: the D-V model) and repeated (CR: the DV-V and V-DV models). Moreover, in Sahel, the DO and the ventive can be repeated simultaneously (DVR: the DV-DV model).
- When in combination both with the IO and DO, the ventive can be preverbal (CCF: the IDV- model and PCF: the IV-D model), postverbal (PCF: the ID-V model), or repeated (VR: the IV-DV model).

Some models are more frequent than the others depending on various factors.
All in all, there are 26 individual models found in the attraction contexts, including the 7 models in the NCF scenario (possible in Sahel in IPF.NEG and IMP.NEG contexts). See Section 13.5 for the summary of the possible models. The purpose of this chapter is to give the details of the clitic behavior in various dialects.

[735] In Sahel, clitics can remain postposed in IPF.NEG (negated Imperfective) and IMP.NEG (prohibitive, which is based on the Imperfective), thus recalling the situation in Hmed and Taghzut.

In Ketama, the behavior of the clitics does not depend on the semantics of the verb or the exact meaning of the clitic pronoun. The same patterns are found with the verbs ‘to give’, ‘to send’, ‘to take/bring’, ‘to kill’, and the speech verb ‘to say/tell’. Naturally, some verbs are more likely to take the ventive or a pronominal clitic. However, if the verb accepts certain clitics, the behavior of the clitics will generally be the same regardless of the verb type. In the present study, only a few verbs are presented in the tables (paradigms), but it was carefully verified that the same clitic behavior is found with other verbs and in natural discourse.

13.1.2. Complete Clitic Fronting: IO + Ventive and DO + Ventive

This section discusses pronominal clitics in combination with the ventive in marked contexts. In the paradigms, the Aorist form of the verb following the irrealis marker is used. For the verb with a single DO and IO clitic in attraction contexts, see Section 5.3. For a verb with a single ventive clitic, see Section 5.3.3. Here, we are only concerned with the clitic combinations (IO + VC and DO + VC).

The following table shows the combination of the IO and DO clitics with the ventive in a fronted position with the verb *š-a y-awi* (K) ‘he will take’ (with the ventive: ‘he will bring’), e.g.

(1) *š-a* *ˆy=* *d=* *y-awi* (K)
1) FT-NR ˆ1S:**DO**= VC= 3MS-take:A
2) FT-NR ˆ1S:**IO**= VC= 3MS-take:A
‘He will bring me (here).’ *or* ‘He will bring for me (here).’

IO/DO + ventive with the 3MS Aorist verb form *š-a y-awi* ‘he’ll take’

IO	**IO + Ventive** ‘he will bring for...’	**DO**	**DO + Ventive** ‘he will bring...’
1S	š-aˆy = d = y-awi	1S	š-a = y = d = y-awi
2MS	š-aˆk̲ = d = y-awi	2MS	š-a = k̲ = d = y-awi
2FS	š-aˆm = d = y-awi	2FS	š-a = m = d = y-awi
3MS	š-aˆs = d = y-awi	3MS	š-a = h = d = y-awi
3FS	š-aˆs = d = y-awi	3FS	š-a = h = d = y-awi
1P	š-aˆhen = d = y-awi	1P	š-a = hen = d = y-awi
2P	š-aˆwen = d = y-awi	2P	š-a = wen = d = y-awi
3P	š-aˆsen = d = y-awi	3P	š-a = hen = d = y-awi

13.2. Partial Clitic Fronting: IO + DO Clitic Combination:

IO + DO clitic combination is only possible when DO is constituted by a third person pronoun (Case-Person Constraint, cf. Section 12.2.1). In unmarked contexts, the clitic combination IO + (3)DO is found together in the postverbal position, while in the attraction contexts, the IO and DO clitics are usually split (PCF: I-D model). Optionally, the DO clitic may be (seemingly) repeated (cf. Section 13.2.2). Complete clitic fronting (CCF: the ID- model) is also possible. The models have different frequency in different Ketama dialects.

13.2.1. Introduction

The IO + (3)DO clitic combination behaves differently from other combinations of two clitics (i.e. DO + ventive and IO + ventive). There are also dialectal differences. While DO + ventive and IO + ventive are normally fronted together as a clitic chain (CCF) in Beni Aisi and Beni Hmed (with some exceptions), the IO + (3)DO sequence is usually split in these dialects, so that only the IO clitic is fronted, while the DO clitic remains in a postverbal position. This yields the PCF construction: the I-D model, e.g.

(2) *š-a* *ˆs=* *i-kk* *=iṯ* (K)
FT-NR ˆ3S:IO= 3MS-give:A=3MS:DO
'He will give it (M) to him/her'.

(3) *š-a* *ˆk̲=* *i-kk* *=ihen*
FT-NR ˆ2MS:IO= 3MS-give:A=3P:DO
'He will give them to you (MS).'

(4) *š-a* *ˆs=* *i-myi* *=hen* (K)
FT-NR ˆ3S:IO= 3MS-show:A =3P:DO
'He will show them to him/her.'

(5) *š-a* *ddu-ġ* *a* *ˆk̲=* *šš-aḫˆ* *ṯen* (K)
FT-NR go:A-1S NRˆ2MS:IO= eat:A-1Sˆ 3P:DO
'I will go and eat them to your (MS) detriment.'

(6) *š-a* *ˆsen=* *y-awi* *=hen* (K)
FT-NR ˆ3P:IO= 3MS-take:A=3P:DO
'He will take them to them.'

(7) *š-a* *ˆk̲=* *erri-ḫˆ* *t* (K)
FT-NR ˆ2MS:IO= 3MS-return:Aˆ3FS:DO
'I will return it (F) to you (MS).'

In this construction, the clitics are found on both sides of the verb. The PCF is not common in Moroccan Berber, including other Senhaja varieties, but is also found in Ghomara (Mourigh 2015: 322). It is also known in Tunisian Berber (Tamezret) (Collins 1982) and in some Algerian Berber varieties (cf. Section 13.4.4).

Within Ketama, there are differences: PCF with the singular form of DO clitic is not found in Lmekhzen (except with the preverbal dummy DO) and in Sahel (whether with or without the preverbal *t*). The CCF (ID-) is also possible: this model is rare in Beni Aisi/Beni Hmed, but it is the preferred variant in Sahel and Lmekhzen. In the CCF construction, the gender of the third person singular DO clitic is not obligatorily distinguished (as in the postverbal position for the IO + DO clitic combination), different from the PCF construction, e.g.[736]

(8) *š-a* *ˆs=* *t=* *i-k* (K: Sahel/Lmekhzen)
FT-NR ˆ3S:IO= 3S:DO= 3MS-give:A
'He will give it (M/F) to him/her'.

This is the only possible variant in Sahel. It is also frequent in Lmekhzen (where it is not the only variant), but it is rare in Beni Aisi/Beni Hmed.[737]

13.2.2. Dummy DO

When in combination with the IO, the DO can be (at least seemingly) repeated. In such constructions, the fronted DO clitic is invariable, and does not mark the number or the gender of the DO. It thus can be considered a petrified *t* (historically marking a DO, but not fully expressing it any more), and synchronically, a dummy DO (with a real DO in the postverbal position). In examples in this thesis, it is glossed as "DO". We label this type of the clitic behavior PCF + *t* (as it is based on the PCF type, with an extra preverbal *t*), and the model is It-D (similar to the I-D model, with an extra *t* followed the IO). The postverbal clitic expresses the gender and number of the DO, e.g.

[736] The 3MS:DO can be (optionally) expressed in Beni Aisi and Beni Hmed by a spirantized *t̲* (rare in Sahel/Lmekhzen).

[737] This variant is especially avoided in Beni Aisi/Beni Hmed in cases of ambiguity such as when the 3S:DO clitic *t* is followed by verb forms starting in the PNG prefix *t-* (2S, 3FS and 2P persons).

(9) *š-a* *ˆs=* *t=* *i-kk* *=iṯ* (K)
FT-NR ˆ3S:IO = DO = 3MS-give:A = 3MS:DO
'He will give it (M) to him/her (MS).'

The following example shows that the dummy DO does not change when the DO has the plural form, e.g.

(10) *š-a* *ˆs=* *t=* *i-kk* *=ihen*
FT-NR ˆ3S:IO = DO = 3MS-give:A = 3P:DO
'He will give them to him/her.'

The dummy DO construction is found in Beni Hmed and Beni Aisi (where it is as frequent as PCF), and also in Lmekhzen, where it is preferred above PCF. It is ungrammatical in Sahel (as is PCF). This model is labelled "It-D" to indicate that there is a dummy DO following the fronted IO, while the DO is postposed. Apparently, the preverbal *t* became petrified and serves as an indicator that the verb has two pronominal clitics (IO and DO). Hence, such constructions can be regarded a special category of the PCF (the I-D model) with the (optional) preverbal dummy DO. Such constructions could emerge due to the fact that, historically, in many situations, the third person singular DO clitic was not distinguished in the preverbal position (e.g. when followed by the 2S/3FS/2P verb forms). As a result, the preverbal DO lost the gender and number specification, and the DO clitic was "repeated" in the postverbal position to give more explicit information.

In Sahel and Lmekhzen, it is possible to have the dummy DO following the fronted 3P:DO clitic, with an optional postverbal 3P:DO, e.g.

(11) *š-a* *ˆs=* *en=* *t=* *y-ek* (CCF: IDt-)
FT-NR ˆ3S:IO = 3P:DO = DO = 3MS-give:A
'He will give them to him/her.'

When there is a postverbal DO, the DO is repeated. We label this type DR (DO repetition): IDt-D model, e.g.

(12) *š-a* *ˆs=* *en=* *t=* *i-kk* *=ihen* (DR: IDt-D)
FT-NR ˆ3S:IO = 3P:DO = DO = 3MS-give:A = 3P:DO
'He will give them to him/her.'

Here, the *t* element (originally a 3S:DO clitic!) follows a 3P:DO clitic, which is realized as *(e)n* following the IO clitic. It is clear that in such examples, the *t* has fully grammaticalized into an indicator of a two-object-construction. In Sahel, this grammaticalized *t* is obligatory, and cannot be omitted (unlike in Beni Aisi/Beni Hmed It-D models). It plays the role in disambiguation as it signals that the preceding *en* has to be interpreted as a 3P:DO marker (and not as part of the preceding 3S:IO clitic, for example). Compare the following forms that are understood as containing a fronted 3P:IO clitic *(a)sen* rather than a combination of 3S:IO + 3P:DO clitics *(a)s* + *en*:

(13) (a) *š-a* *ˆsn=* *i-kk* *=ihen*
FT-NR ˆ3P:IO = 3MS-give:A = 3P:DO
'He will give them to them.'

(b) *š-a* *ˆsen=* *y-ek*
FT-NR ˆ3P:IO = 3MS-give:A
'He will give to them.'

When both the DO and the IO have the plural form, the IDt-D and the IDt- models are no longer possible in Sahel, because they lead to ambiguity: the IO clitic, which in the plural forms ends in *-n* (e.g. *(a)sen* 'for them') would be followed by the 3P:DO clitic *(e)n*, which would thus become undistinguished, e.g. 3P:IO *(a)sen* + 3P:DO *n* > *(a)sen*. In this case, the PCF (partial clitic fronting) and the CR (clitic repetition, viz. DO repetition, by means of preverbal *t*) models are used, as discussed below.

In the following two subsections, the paradigms of the verb containing two pronominal clitics (IO and DO) are presented. First, IO + 3S:DO is discussed, followed by IO + 3P:DO.

13.2.3. IO and Third Person Singular DO

The following table provides a paradigm of the verb *š-a y-ek* 'he will give' containing both the IO and the 3S:DO clitics: 'He will give it (3S:DO) to [someone]' (with various IO clitics).[738] The dummy DO is represented as *t* in the names of types and models:

- PCF (I-D model) and CCF (ID- model) involve no dummy DO;
- PCF + *t* is similar to the PCF (as the IO is fronted, and the DO is postposed), but involves the dummy DO (which is seemingly repeated in the postverbal position, on the surface identical with the DO repetition): It-D model.

[738] In the column 'Dialect', the following abbreviations are used: BA/H = Beni Aisi/Beni Hmed, L = Lmekhzen, Sh = Sahel.

IO + 3S:DO with the verb 'to give' in 3MS Aorist

IO	Forms	Type	Model	Dialect
1S	š-aˆ(y)t = i-kk = it[739]	PCF	I-D	BA/H
	š-aˆy = t = i-kk = it	PCF + *t*	It-D	L (BA/H)
	š-aˆy = t = i-k	CCF	ID-	Sh, L (BA/H)
2MS	š-aˆk̲ = i-kk = it	PCF	I-D	BA/H
	š-aˆk̲ = t = i-kk = it	PCF + *t*	It-D	L (BA/H)
	š-aˆk̲ = t = i-k	CCF	ID-	Sh, L (BA/H)
2FS	š-aˆm = i-kk = it	PCF	I-D	BA/H
	š-aˆm = t = i-kk = it	PCF + *t*	It-D	L (BA/H)
	š-aˆm = t = i-k	CCF	ID-	Sh, L (BA/H)
3S	š-aˆs = i-kk = it	PCF	I-D	BA/H
	š-aˆs = t = i-kk = it	PCF + *t*	It-D	L (BA/H)
	š-aˆs = t = i-k	CCF	ID-	Sh, L (BA/H)
1P	š-aˆhn = i-kk = it	PCF	I-D	BA/H
	š-aˆhen = t = i-kk = it	PCF + *t*	It-D	L (BA/H)
	š-aˆhen = t = i-k	CCF	ID-	Sh, L (BA/H)
2P	š-aˆwn = i-kk = it	PCF	I-D	BA/H
	š-aˆwen = t = i-kk = it	PCF + *t*	It-D	L (BA/H)
	š-aˆwen = t = i-k	CCF	ID-	Sh, L (BA/H)
3P	š-aˆsn = i-kk = it	PCF	I-D	BA/H
	š-aˆsen = t = i-kk = it	PCF + *t*	It-D	L (BA/H)
	š-aˆsen = t = i-k	CCF	ID-	Sh, L (BA/H)

When the DO has the singular form, the person and the number of the IO clitic does not play a role for the construction (with an exception of 1S:IO, see below). With each IO clitic, there are three models (that are found with a different frequency in different dialects):

1) PCF (I-D) e.g. *š-aˆs = i-kk = it* 'He'll give it to him/her': Beni Aisi, Beni Hmed;
2) PCF + *t* (It-D) e.g. *š-aˆs = t = i-kk = it* 'id.': Lmekhzen, Beni Aisi, Beni Hmed;
3) CCF (ID-) e.g. *š-aˆs = t = i-k* 'id.': Sahel, Lmekhzen (Beni Aisi/Beni Hmed).

[739] Also: *š-a = (y)t̲ = i-kk = it.*

The CCF (original) construction has a wider geographical distribution, as it is found in all the four studied villages. It is also the construction that is used in other Senhaja varieties, e.g.

(14) *š-a* *ˆs=* *t=* *y-awi* (H)
š-a *ˆs=* *ṯ=* *y-awi* (B/Z)
FT-NR ˆ3S:IO= 3MS:DO= 3MS-take:A
'He will take it (M) to her/him.'

A note regarding 1S:IO + 3S:DO

The fronted 1S:IO has the form *yṯ/yt/t* when it occurs on its own (depending on the dialect) and the form *y* when it is followed by a DO clitic or a ventive. The fronted 1S:IO clitic *yt* is homophonous with the combination of the 1S *y* + 3S:DO *t*.[740] For this reason, with the fronted 1S:IO, the PCF construction (*š-aˆyt=i-kk=it* 'He will give it to me') is impossible to distinguish from a PCF + *t* variant (*š-aˆy=t=i-kk=it* 'id.'). Furthermore, a variant with the CCF (*š-aˆy=t=i-k* 'id.') is impossible to distinguish from a variant without a DO clitic (*š-aˆyt=i-k* 'He will give to me'). The variant *š-a=yṯ=i-k* can be analyzed as containing a single 1S:IO clitic *yṯ* ('He will give to me') or a combination of 1S:IO *y* + 3MS *ṯ* (*š-aˆy=ṯ=i-k* 'He will give it (M) to me'). In spite of this, in the above table, the three possible models are listed for the 1S:IO (as three models exist with all the other persons). Below follow additional examples for the combination of IO + 3S:DO in the attraction contexts:

(15) *š-a* *ˆs=* *awiˆ* *ḥ*
FT-NR ˆ3S:IO= takeˆ 3S:DO
'I will take it (M/F) to him/her.'
(16) *šk*ˆ *a* *ˆk=* *t=* *i-nna-n* *=t?*
WH RM 2MS:IO= DO= RF-say:P-RF =3S:DO
'Who told it to you (MS)?'
(17) *š-a* *ˆk=* *zzenz-aˆ* *ḥ* *žžuž* *n* *lemlayen*
FT-NR ˆ2MS:IO= sell:A-1Sˆ 3S:DO two of million
'I will sell it to you (MS) for two million.'

[740] As noted previously, the fronted 1S (IO and DO) clitic *yt* might be originally an amalgam of the 1S clitic *y* and the following 3S:DO (*t*), or a reinterpretation of the 1S clitic *y* and the following 2S/3FS/2P subject prefix, or a combination of both.

13.2.4. IO and Third Person Plural DO

When there is a combination of an IO and a third person plural DO clitic, the behavior of the clitics differs depending on the number of the IO clitic (whether it is singular or plural).

13.2.4.1. Singular IO + 3P:DO

With singular IO clitics (except for 1S:DO), the following four types and models are found. Three of them involve a dummy DO.

Clitic behavior in the combination singular IO + 3P:DO

Type	**Model**	**Example** (3S:IO + 3P:DO) 'He'll give them to him/her'	**Dialect**
PCF	I-D	š-aˆs = i-kk = ihen	Beni Aisi/Hmed (rare in Lmekhzen)
PCF + *t*	It-D	š-aˆs = t = i-kk = ihen	Lmekhzen (rare in Beni Aisi/Hmed)
DR + *t*	IDt-D	š-aˆs = en = t = i-kk = ihen	Sahel (rare in Lmekhzen)
CCF + *t*	IDt-	š-aˆs = en = t = y-ek	Sahel (rare in Lmekhzen)

Explanation and glossed examples follow.

1) the PCF (I-D model), in Beni Aisi/Beni Hmed (rare in Lmekhzen), e.g.

(18) *š-a* *ˆs =* *i-kk* *= ihen*
FT-NR ˆ3S:IO = 3MS-give:A = 3P:DO
'He will give them to him/her.'

2) the PCF + *t* (It-D model), in Lmekhzen (rare in Beni Aisi/Beni Hmed), e.g.

(19) *š-a* *ˆs =* *t =* *i-kk* *= ihen*
FT-NR ˆ3S:IO = DO = 3MS-give:A = 3P:DO
'He will give them to him/her.'

The following two constructions are found in Sahel (and sometimes in Lmekhzen), but have not been found in Beni Aisi/Beni Hmed. They are referred to as "the Sahel models":

3) the DR + *t* (IDt-D), in Sahel (and rarely in Lmekhzen), e.g.[741]

(20) *š-a* *ˆs=* *en=* *t=* *i-kk* *=ihen*
FT-NR ˆ3S:IO= 3P:DO= DO= 3MS-give:A =3P:DO
'He will give them to him/her'.

4) the CCF + *t* (IDt- model), in Sahel (and rarely in Lmekhzen), e.g.[742]

(21) *š-a* *ˆs=* *en=* *t=* *y-ek*
FT-NR ˆ3S:IO= 3P:DO= DO= 3MS-give:A
'He will give them to him/her'.

The last two examples (the "Sahel" models DR + *t* and CCF + *t*) are homophonuous with the following two examples, that are also found in Beni Aisi/Beni Hmed:[743]

(22) *š-a* *ˆsen=* *t=* *i-kk* *=ihen* (PCF + *t*: Dt-I model)
FT-NR ˆ3P:IO= DO= 3MS-give:A =3P:DO
'He will give them to them.'
(23) *š-a* *ˆsen=* *t=* *y-ek* (CCF: ID-)
FT-NR ˆ3P:IO= 3S:DO= 3MS-give:A
'He will give it to them'.

The CCF construction without the dummy DO is ungrammatical with a plural DO:[744]

(24) **š-a* *ˆs=* *(h)n=* *i-k*
FT-NR ˆ3S:IO= 3PDO= 3MS-give:A
Intended: 'He will give them to him/her'.

The following example (with a repeated 3P:IO clitic, intended as the DR: ID-D model) is also ungrammatical:

[741] The label "DR + *t*" (IDt-D model) indicates that the repetition of the plural DO is accompanied by the dummy DO. There are thus seemingly three DO markers in the construction, although the dummy DO is grammaticalized to such an extent that it cannot be considered a DO marker any more.
[742] The label "CCF + *t*" (IDt- model) indicates that the complete fronting (of IO and DO) is accompanied by the dummy DO.
[743] In other words, in Sahel (and Lmekhzen), but not in Beni Aisi/Beni Hmed, the element *(e)n* can be interpreted either as part of the preceding 3P:IO *(a)sen*, or as 3P:DO clitic *n* (when followed by the dummy DO). In Beni Aisi/Beni Hmed, only one reading is possible (with a 3P:IO).
[744] In Ketama, the fronted 3P:DO clitic is *hn*.

(25) *š-a ˆs= n= i-kk =ihen
FT-NR ˆ3S:IO= 3P:DO= 3MS-give:A= 3P:DO
Intended: ‘He will give them to him/her’.

A note regarding 1S:IO + 3P:DO

There are some peculiarities when 3P:DO is combined with the 1S:IO clitic. First of all, as with the 3S:DO, it is impossible to distinguish the two models, namely, the PCF (I-D model) and the PCF + *t* (It-D model):

(26) (a) *š-a ˆyt= i-kk =ihen* (PCF)
FT-NR ˆ1S:IO= 3MS-give:A= 3P:DO
(b) *š-a ˆy= t= i-kk =ihen* (PCF + *t*)
FT-NR ˆ1S:IO= DO= 3MS-give:A= 3P:DO
‘He will give them to me.’

This construction (the PCF/PCF + *t*), which is usually ungrammatical in Sahel for the singular IO + 3P:DO combinations, is possible with the 1S:IO clitic, and is actually the only possible variant in this dialect, while the “Sahel models” (DR + *t* and CCF + *t*) are ungrammatical:

(27) (a) *š-a ˆy= en= t= i-kk =ihen* (DR + *t*)
FT-NR ˆ1S:IO= 3P:DO= DO= 3MS-give:A= 3P:DO
(b) *š-a ˆy= en= t= y-ek* (CCF + *t*)
FT-NR ˆ1S:IO= 3P:DO= DO= 3MS-give:A
Intended: ‘He will give them to me.’

13.2.4.2. Plural IO + 3P:DO

When the IO is plural (in addition to the plural DO), only two constructions are found. One of them involves a dummy DO.

Clitic behavior in the combination plural IO + 3P:DO

Type	**Model**	**Example** (3S:IO + 3P:DO) ‘He’ll give them them’	**Dialect**
PCF	I-D	š-aˆsn= i-kk= ihen	Beni Aisi/Hmed (rare in Lmekhzen)
PCF + *t*	It-D	š-aˆsen= t= i-kk= ihen	Sahel/Lmekhzen (rare in Beni Aisi/Hmed)

Explanation and glossed examples follow.

1) the PCF (I-D), in Beni Aisi/Beni Hmed (and rare in Lmekhzen), e.g.

(28) *š-a* *ˆsn=* *i-kk* *=ihen*
FT-NR ˆ3P:IO=3MS-give:A =3P:DO
'He will give them to them.'

2) the PCF + *t* (It-D), in Sahel and Lmekhzen (rare in Beni Aisi/Beni Hmed), e.g.

(29) *š-a* *ˆsen=* *t=* *i-kk* *=ihen*
FT-NR ˆ3P:IO=DO= 3MS-give:A =3P:DO
'He will give them to them.'

With a plural IO in combination with a plural DO, the PCF is still the preferred variant in Beni Aisi/Beni Hmed (also found in Lmekhzen). However, the "Sahel models" (DR + *t* and CCF + *t*) do not work, because they involve the 3P:DO marker *n* after the IO marker that already ends in *-n*. Thus, with the 1P:IO, both the DR + *t* and the CCF + *t* constructions are ungrammatical, e.g.

(30) (a) **š-a* *ˆhen=* *n=* *t=* *i-kk* *=ihen* (DR + *t*)
FT-NR ˆ1P:IO=3P:DO=DO= 3MS-give:A =3P:DO
(b) **š-a* *ˆhen=* *n=* *t=* *y-ek* (CCF + *t*)
FT-NR ˆ1P:IO=3P:DO=DO= 3MS-give:A
Intended: 'He will give them to us.'

One could also consider that when the IO is plural, the DR + *t* and the PCF + *t* constructions merge (*a* > *b*), e.g.

(31) (a) **š-a* *ˆhen=* *n=* *t=* *i-kk* *=ihen* (DR + *t*)
FT-NR ˆ1P:IO=3P:DO=DO= 3MS-give:A =3P:DO
(b) *š-a* *ˆhen=* *t=* *i-kk* *=ihen* (PCF + *t*)
FT-NR ˆ1P:IO=DO= 3MS-give:A =3P:DO
'He will give them to us.'

The paradigm for singular and plural IO + plural DO clitics

The following table provides a paradigm with the verb *š-a y-ek* 'he will give' with the IO and 3P:DO clitics: 'He will give them (3P:DO) to [...]' (with various IO clitics).

IO + 3P:DO with the verb 'to give' in 3MS Aorist

IO	Forms	Type	Model	Dialect
1S	š-aˆyt = i-kk = ihen[745] =	PCF =	I-D =	BA/H, L
	š-aˆy = t = i-kk = ihen	PCF + *t*	It-D	Sh
2MS	š-aˆk̲ = i-kk = ihen	PCF	I-D	BA/H (L)
	š-aˆk̲ = t = i-kk = ihen	PCF + *t*	It-D	L (BA/H)
	š-aˆk̲ = en = t = i-kk = ihen	DR + *t*	IDt-D	Sh (L)
	š-aˆk̲ = en = t = y-ek	CCF + *t*	IDt-	Sh (L)
2FS	š-aˆm = i-kk = ihen	PCF	I-D	BA/H (L)
	š-aˆm = t = i-kk = ihen	PCF + *t*	It-D	L (BA/H)
	š-aˆm = en = t = y-ek	CCF + *t*	IDt-	Sh
3S	š-aˆs = i-kk = ihen	PCF	I-D	BA/H (L)
	š-aˆs = t = i-kk = ihen	PCF + *t*	It-D	L (BA/H)
	š-aˆs = en = t = i-kk = ihen	DR + *t*	IDt-D	Sh (L)
	š-aˆs = en = t = y-ek	CCF + *t*	IDt-	Sh (L)
1P	š-aˆhn = i-kk = ihen	PCF	I-D	BA/H (L)
	š-aˆhen = t = i-kk = ihen	PCF + *t*	It-D	L (BA/H), Sh
2P	š-aˆwn = i-kk = ihen	PCF	I-D	BA/H (L)
	š-aˆwen = t = i-kk = ihen	PCF + *t*	It-D	L (BA/H), Sh
3P	š-aˆsn = i-kk = ihen	PCF	I-D	BA/H (L)
	š-aˆsen = t = i-kk = ihen	PCF + *t*	It-D	L (BA/H), Sh

13.2.4.3. Summary

When the DO has the plural form, there are differences depending on the IO pronoun (whether it is singular or plural). With a singular IO, four constructions are possible: the PCF (I-D) in Beni Aisi/Beni Hmed (and Lmekhzen), the PCF + *t* (It-D) in Lmekhzen (also in Beni Aisi/Hmed), the DR + *t* (IDt-D) in Sahel (and Lmekhzen), and the CCF + *t* (IDt-) in Sahel (and Lmekhzen). The last two constructions (the "Sahel models" DR + *t* and CCF + *t*) are incompatible with 1S:IO and with all plural IO pronominal clitics.

[745] Also: *š-aˆ(y)t̲ = i-kk = ihen*.

With plural IO clitics, two constructions are found: the PCF (I-D) in Beni Aisi/Beni Hmed (and Lmekhzen), and the PCF + *t* (It-D) in Sahel and Lmekhzen (rare in Beni Aisi/Beni Hmed). The CCF + *t* construction does not work in Sahel as it involves the plural IO clitic ending on *-n* + the 3P:DO *-n*. The following table summarizes the found constructions. These are the encountered constructions when the DO is in plural:

Clitic behavior in the combination IO + 3P:DO

IO	**Type**	**Model**	**Examples**	**Dialect**
SG			3S:IO + 3P:DO: 'He'll give them to him/her'	
	PCF	I-D	*š-aˆs = i-kk = ihen*	Beni Aisi/Hmed (Lmekhzen)
	PCF + *t*	It-D	*š-aˆs = t = i-kk = ihen*	Lmekhzen (Beni Aisi/Hmed)
	DR + *t*	IDt-D	*š-aˆs = en = t = i-kk = ihen*	Sahel (Lmekhzen)
	CCF + *t*	IDt-	*š-aˆs = en = t = y-ek*	Sahel (Lmekhzen)
PL			3S:IO + 3P:DO: 'He'll give them them'	
	PCF	I-D	*š-aˆsn = i-kk = ihen*	Beni Aisi/Hmed (Lmekhzen)
	PCF + *t*	It-D	*š-aˆsen = t = i-kk = ihen*	Sahel/Lmekhzen (Beni Aisi/Hmed)

¶ Comparative note (Taghzut)

In the rest of Senhaja, e.g. in the neighboring Taghzut, having a combination of a plural DO and IO (singular or plural) poses no problem, e.g.

(32) *š-a* *ˆs =* *tn =* *i-k* (T)
FT-NR ˆ3S:IO = 3P:DO = 3MS-give:A
'He will give them to him/her.'

(33) *š-a* *ˆsen =* *tn =* *i-k* (T)
FT-NR ˆ3P:IO = 3P:DO = 3MS-give:A
'He will give them to them'.

In Ketama, the difficulty is caused by the fact that the initial *t-* of 3P:DO *ten* disappeared as a result of "extreme spirantization" ($t > \underline{t} > h > ø$), and the resulting form *(e)n* becomes invisible after all plural forms of the IO (1P *hen*, 2P *wen*, 3P *sen*), while after the 3S:IO *(a)s*, it becomes indistinguishable from the 3P:IO *sen*. In Hmed, such examples are ambiguous.

Avoidance of ambiguity?

Both the PCF (I-D) and the PCF + *t* (It-D) constructions are probably an innovation in Ketama. These constructions, divergent from the usual (CCF) scheme, might have arisen in order to avoid ambiguity. Besides the fact that in the preverbal position, following an IO clitic, the 3MS:DO and 3FS:DO clitics often merge, there is yet another difficulty. Thus, the CCF (ID- model with the preverbal 3S:DO clitic pronoun *t*) leads to ambiguity when used with *t*-initial verb forms (2S/3FS/2P prefix), as it is impossible to distinguish such forms from a variant without a 3S:DO. In a PCF construction (I-D model), by means of postposing the DO clitic, the ambiguity is resolved and the DO remains explicit. However, the ambiguity regarding the presence of the DO exists also in sentences without an IO clitic, which have no other model to avoid the ambiguity. In Lmekhzen and Sahel (as in Taghzut and Zerqet), where the PCF is ungrammatical with the singular DO, the CCF-model used with *t*-initial verb forms is homophonous with a construction without a DO. When the verb form does not have a subject prefix *t*-, there are no difficulties, as the presence of DO is apparent. Still, even with these verb forms, the PCF model is preferred in Beni Aisi/Beni Hmed.

Whatever the exact origin of the innovated (PCF and PCF + *t*) constructions, the ambiguity in them is avoided by means of postposing the DO clitic, which in the postverbal position does not risk to fuse with the PNG prefix *t*- and become indistinguishable. The PCF and PCF + *t* constructions are also more transparent when it comes to the expression of 3P:DO, which becomes reduced to *(e)n* in the fronted position following IO, leading to a number of difficulties.

13.3. Ventive Repetition: IO + DO + Ventive Clitic Combination

13.3.1. Introduction

When the verb includes all the three clitics (IO + DO + ventive) in the context of attraction, there are again different scenarios, with different frequencies in different dialects. The major schemes that unite several models include, as with the IO + DO combination:

1) the CR (VR: the IV-DV model). In this model, the first ventive occurs following the fronted IO clitic, and the second is placed after the postverbal DO clitic.[746]

[746] Outside Senhaja, ventive repetition is found in Ghomara (Mourigh 2015: 323, 325), Mali Tuareg (Heath 2005: 597 and 601) and in Bousemghoun Sud-Oranais (Kossmann 2010: 93), among others. However, in these varieties, the ventive can be repeated also when it is the only clitic in the construction. This is extremely rare in Ketama.

For example: *š-aˆs=d=i-kk=ihˆiḏ* 'He will give it (M) to him/her'. This model is especially frequent in Beni Aisi/Beni Hmed. Just as the following model, it is based on the PCF (I-D model), where the IO is fronted and the DO is postposed (frequent in Beni Aisi/Beni Hmed). The repetition of the ventive is not obligatory, and the ventive can also appear only preverbally or only postverbally (in the PCF construction);

2) the PCF with two sub-types, the I-DV model, e.g. *š-aˆs=i-kk=ihˆiḏ* 'He will give it (M) to him/her', and the IV-D model, e.g. *š-aˆs=d=i-kk=iṯ* 'id.' Both models are possible in Beni Aisi/Beni Hmed, although the above (IV-DV) model is more frequent;
3) the CCF (the IDV- model), e.g. *š-aˆs=tˆiḏ=i-k* 'He will give it (M) to him/her'. This model is especially frequent in Sahel (where the CCF model is also frequent for the IO + DO clitic combination). However, when both the DO and the IO have the plural form, the CCF (IDV-) model is no longer possible. In this case, Sahel behaves like other villages.

In what follows, the third person singular and plural DO clitics are discussed separately.

13.3.2. IO + 3S:DO + Ventive

The table on the following page provides a paradigm with the verb *š-a y-ek* 'he will give' containing IO + 3S:DO + ventive clitics: 'He will give it (3S:DO) to [someone] (with various IO clitics) here/in this direction'. When the ventive occurs with the IO and the 3S:DO clitics, it can appear:

1) on both sides of the verb (i.e. it can be repeated): VR (IV-DV model);
2) in the postverbal position: PCF (I-DV model);
3) in the preverbal position: PCF (IV-D) and CCF (IDV- model).

For the combination of IO + DO + ventive, the PCF scenario involves two models (IV-D and I-DV). There are no constructions where IO and DO are fronted, but ventive is postposed (i.e. ventive does not occur postverbally without the preceding DO), or where IO + DO are fronted, and DO + ventive are postposed. When there is a combination of three clitics, DO clitic is not repeated and there are no traces of the dummy DO. Alternatively, the preverbal *t* could have become assimilated to the ventive *d*.[747] Also, if the preverbal *t* could occur without the following ventive, it would be invisible with the 2S/3FS/2P verb forms (prefix *t-*).

[747] This, however, does not happen in the CCF scenario in Sahel (or in the neighbouring Taghzut variety).

IO + 3(M)S:DO + ventive with the verb 'to give' in 3MS Aorist

IO	Forms	Type	Model	Dialect
1S	š-aˆy = d = i-kk = ihˆiḏ	VR	IV-DV	BA/H
	š-aˆy = d = i-kk = iṯ	PCF	IV-D	(BA/H)
	š-aˆ(y)t = i-kk = ihˆiḏ[748]	PCF	I-DV	(BA/H)
	š-aˆy = t = iḏ = i-k	CCF	IDV-	Sh (BA/H)
2MS	š-aˆḵ = d = i-kk = ihˆiḏ	VR	IV-DV	BA/H
	š-aˆḵ = d = i-kk = iṯ	PCF	IV-D	(BA/H)
	š-aˆḵ = i-kk = ihˆiḏ	PCF	I-DV	(BA/H)
	š-aˆḵ = tˆiḏ = i-k	CCF	IDV-	Sh (BA/H)
2FS	š-aˆm = d = i-kk = ihˆiḏ	VR	IV-DV	BA/H
	š-aˆm = d = i-kk = iṯ	PCF	IV-D	(BA/H)
	š-aˆm = i-kk = ihˆiḏ	PCF	I-DV	(BA/H)
	š-aˆm = tˆiḏ = i-k	CCF	IDV-	Sh (BA/H)
3S	š-aˆs = d = i-kk = ihˆiḏ	VR	IV-DV	BA/H
	š-aˆs = d = i-kk = iṯ	PCF	IV-D	(BA/H)
	š-aˆs = i-kk = ihˆiḏ	PCF	I-DV	(BA/H)
	š-aˆs = tˆiḏ = i-k	CCF	IDV-	Sh (BA/H)
1P	š-aˆhen = d = i-kk = ihˆiḏ	VR	IV-DV	BA/H
	š-aˆhen = d = i-kk = iṯ	PCF	IV-D	(BA/H)
	š-aˆhn = i-kk = ihˆiḏ	PCF	I-DV	(BA/H)
	š-aˆhen = t = iḏ = i-k	CCF	IDV-	Sh (BA/H)
2P	š-aˆwen = d = i-kk = ihˆiḏ	VR	IV-DV	BA/H
	š-aˆwen = d = i-kk = iṯ	PCF	IV-D	(BA/H)
	š-aˆwn = i-kk = ihˆiḏ	PCF	I-DV	(BA/H)
	š-aˆwen = t = iḏ = i-k	CCF	IDV-	Sh (BA/H)
3P	š-aˆsen = d = i-kk = ihˆiḏ	VR	IV-DV	BA/H
	š-aˆsen = d = i-kk = iṯ	PCF	IV-D	(BA/H)
	š-aˆsn = i-kk = ihˆiḏ	PCF	I-DV	(BA/H)
	š-aˆsen = t = iḏ = i-k	CCF	IDV-	Sh (BA/H)

As the DO is most often split from the IO and found in the postverbal position (whether with or without the following ventive), or in the preverbal position in combination with the ventive, its gender is always distinguished (at least due to the form of the ventive).

[748] Also: *š-a = (y)ṯ = i-kk = ihˆiḏ*.

There is a correlation between the constructions used with the IO + DO clitics and the IO + DO + ventive clitics. In Beni Aisi/Beni Hmed, where with the IO + DO combination, the PCF (I-D model) is the most frequent variant, the ventive clitic is usually repeated when all the three clitics occur (the IV-DV model). The IV-DV model is derived from the I-D model by adding the ventive clitic after each of the pronominal clitics. Although this is the preferred variant in Beni Aisi/Beni Hmed, ventive repetition is optional, and any of the two ventives can be omitted, yielding two PCF constructions (IV-D and I-DV). Both models are possible in Beni Aisi/Beni Hmed, although they are less frequent than the IV-DV model.

In Sahel, where with the IO + DO combination, the CCF (ID- model) is the only grammatical variant, the ventive is also fronted when all the three clitics occur (CCF: the IDV- model). The IDV- model is also possible in Beni Aisi/Beni Hmed, although there, it occurs rarely.

Additional examples from Ketama (Beni Aisi/Beni Hmed dialects) follow:

(34) *š-a* *ˆs=* *d=* *awi-ẖ* *ˆẖ* *ˆiḏ*
FT-NR ˆ3S:IO=VC= take:A-1S ˆ3MS:DO ˆVC
'I will bring it (M) here for him/her.'

(35) *u* *ˆs=* *d=* *i-qqṛ* *=ih* *ˆed* *šay*
NEG ˆ3S:IO=VC= 3MS-say:I =3FS:DO ˆVC NEG
'He is not saying it (F) to him/her.'

(36) *š-a* *ˆy=* *d* *ˆzzenz-etˆ* *t* *ˆiḏ*?
FT-NR ˆ1S:IO=VC ˆ(2S:)sell:A-2Sˆ3MS:DOˆVC
'Will you (SG) sell it (M) to me?'

(37) *š-a* *ˆḳ* *ˆd=* *i-rri* *=h* *ˆed* (K)
FT-NR ˆ2MS:IO ˆVC= 3MS-return:A =3FS:DO ˆVC
'He will return it (F) to you (MS) (here).'

¶ *Comparative note (Senhaja)*

In other Senhaja varieties, there is no problem with the CCF scenario, and all the three clitics appear together (IDV-model, as found in Sahel). Compare the following Sahel, Taghzut, and Hmed examples:

(38) *š-a* *ˆs=* *ṯ* *ˆiḏ=* *i-k* (K-Sahel/T/Z)
š-a *ˆs=* *t* *ˆid=* *i-k* (H)
FT-NR ˆ3S:IO=3MS:DO ˆVC=3MS-give:A
'He will give it (M) to him/her (here).'

13.3.3. IO + 3P:DO + Ventive

As with the IO + DO clitic combination, there are differences depending on the number of the DO clitic. The CCF scenario (IDV-) is not compatible with 3P:DO clitic. The following table provides a paradigm with the verb *š-a y-ek* 'he will give' with the IO + 3P:DO + ventive clitics: 'He will give them (3P:DO) to [someone] (with various IO clitics) here/in this direction'.[749]

IO + 3P:DO + ventive with the verb 'to give' in 3MS Aorist

IO	IO + DO	Type	Model	Dialect
1S	š-aˆy = d = i-kk = ihen = d	VR	IV-DV	BA/H
	š-aˆy = d = i-kk = ihen	PCF	IV-D	(BA/H)
	š-aˆyt = i-kk = ihen = d[750]	PCF	I-DV	(BA/H)
2MS	š-aˆk̲ = d = i-kk = ihen = d	VR	IV-DV	BA/H
	š-aˆk̲ = d = i-kk = ihen	PCF	IV-D	(BA/H)
	š-aˆk̲ = i-kk = ihen = d	PCF	I-DV	(BA/H)
2FS	š-aˆm = d = i-kk = ihen = d	VR	IV-DV	BA/H
	š-aˆm = d = i-kk = ihen	PCF	IV-D	(BA/H)
	š-aˆm = i-kk = ihen = d	PCF	I-DV	(BA/H)
3S	š-aˆs = d = i-kk = ihen = d	VR	IV-DV	BA/H
	š-aˆs = d = i-kk = ihen	PCF	IV-D	(BA/H)
	š-aˆs = i-kk = ihen = d	PCF	I-DV	(BA/H)
1P	š-aˆhen = d = i-kk = ihen = d	VR	IV-DV	BA/H
	š-aˆhen = d = i-kk = ihen	PCF	IV-D	(BA/H)
	š-aˆhn = i-kk = ihen = d	PCF	I-DV	(BA/H)
2P	š-aˆwen = d = i-kk = ihen = d	VR	IV-DV	BA/H
	š-aˆwen = d = i-kk = ihen	PCF	IV-D	(BA/H)
	š-aˆwn = i-kk = ihen = d	PCF	I-DV	(BA/H)
3P	š-aˆsen = d = i-kk = ihen = d	VR	IV-DV	BA/H
	š-aˆsen = d = i-kk = ihen	PCF	IV-D	(BA/H)
	š-aˆsn = i-kk = ihen = d	PCF	I-DV	(BA/H)

[749] No data from the Sahel dialect are available for this context.

[750] Also: *š-aˆyt̲ = i-kk = ihen = d*.

When the ventive clitic occurs with the IO and the 3P:DO clitics, it can appear:

1) in the postverbal position: PCF (I-DV model);
2) in the preverbal position: PCF (IV-D model);
3) on both sides of the verb: VR (IV-DV model).

The difference with the constructions involving IO + 3S:DO + ventive clitics is that now, the CCF (IDV- model) is not available. This is probably due to the fact that in this scenario, the form of the fronted DO would have been reduced to *(e)n*, thus leading to ambiguity in a number of cases (most notably, following 3S:IO and all plural IO clitics). Additional examples with IO + 3P:DO + ventive follow.

(39) *u* *ˆhen=* *d=* *kka-n=* *ṯen=* *d* *šay*
NEG 1P:IO= VC= give:P-3P=3P:DO=VC NEG
'They did not give them to us.'

(40) *š-a* *s=* *d=* *i-mmi* *=hen* *=d*
FT-NR 1S:IO= VC= 3MS-show:A =3P:DO=VC
'He will show them to him/her.'

(41) *š-a* *ˆsen=* *d=* *y-awi* *=hen* *=d* (K)
FT-NR ˆ3P:IO=VC= 3MS-take:A=3P:DO=VC
'He will bring them to them.'

13.4. Other Divergent Constructions

13.4.1. Introduction

There are other deviations from the usual scheme that are either specific to some contexts (such as prohibitives) or dialects of Ketama (such as Sahel). These divergent constructions are discussed in this section. Section 13.4.2 discusses prohibitives, that are special in all Ketama dialects (as well as in the neighboring Taghzut and Seddat varieties), while Section 13.4.3 discusses divergent constructions that are found in the Sahel dialect. For comparison, Section 13.4.4 briefly looks at the divergent clitic behavior outside Senhaja.

Within Ketama, besides the models described above, other deviations have been found, for example for the DO + ventive clitic combination in the dialect of Lmekhzen. Normally, when the DO + ventive occur in contexts of attraction, they are fronted together (complete clitic fronting, as in example *a* below). In this case, the

gender in third person singular DO pronouns is not distinguished. However, in Lmekhzen, when DO is represented by the third person, there is an alternative construction, where ventive is found in the preverbal position, while DO + (repeated) ventive are found in the postverbal position (example *b* below): the V-DV model. In this case, the gender of the DO clitic is distinguished. Compare:

(42) (a) *š-a* *h=* *d=* *i-ẓeṛ* (K: Beni Aisi, Beni Hmed)
FT-NR 3S:DO = VC = 3MS-see:A
'He will see him/her (from far).'

(b) *š-a* *d=* *i-ẓṛ* *=ih* *ˆi* (K: Lmekhzen)
FT-NR VC = 3MS-see:A = 3MS:DO ˆVC
'He will see him (from far).'

(c) *š-a* *d=* *i-ẓṛ* *=ih* *ˆed* (K: Lmekhzen)
FT-NR VC = 3MS-see:A = 3MS:DO ˆVC
'He will see her (from far).'

It is possible that in this case, the alternative construction divergent from the usual clitic fronting developed in Lmekhzen due to the drive to maintain the difference between 3MS and 3FS:DO pronouns.

13.4.2. Prohibitives: Split of the Clitic from the Verb

As mentioned previously, Ketama has a specialized prohibitive *i* (Section 5.2.2.2), and Ketama prohibitives with the clitics have a special scheme:

u + CLITIC(S) + *i* + VERB + *ši/šay*.

The clitic (or the clitic chain) is thus separated from the verb (SCV). The same phenomenon is found in Seddat and (optionally) in Taghzut with the prohibitives that include a clitic, although the prohibitive *i* is not used in these varieties outside this context. Outside the prohibitives, SCV does not occur in Senhaja. Some examples from Ketama follow. For Taghzut, see Section 12.5.

(43) *u* *d* *i* *k̲eššem* *ši*
NEG VC NEG enter:I:IMP:SG NEG
'Do not enter (SG) here!'

(44) *u* *ˆyṭ* *i* *qqaṛ* *ši*
NEG 1S:IO NEG say:I:IMP:SG NEG
‘Do not tell (SG) me!’

(45) *u* *t* *i* *tak* *ši*
NEG 3FS:DO NEG give:I:IMP:SG NEG
‘Do not give (SG) it (F)!’

(46) *u* *h* *d* *i* *tak* *ši*
NEG 3S:DO VC NEG give:I:IMP:SG NEG
‘Do not give (SG) it (here)!’

When the prohibitive contains an IO and a DO, the clitic chain can be split, and when the verb form includes the ventive as a third clitic, it can be repeated, as in other verb forms with this clitic combination. Examples follow.

(47) *u* *ˆyṭ* *i* *qqṛ* *=it* *ši*
NEG 1S:IO NEG say:I:IMP:SG =3FS:DO NEG
‘Do not tell (SG) it (F) to me!’

(48) *u* *ˆs* *i* *takk* *=it* *ši*
NEG 3S:IO NEG give:I:IMP:SG =3FS:DO NEG
‘Do not give (SG) it (F) to him/her!’

An example with the preverbal dummy DO:

(49) *u* *ˆs* *t* *i* *tak* *=iṭ* *ši*
NEG 3S:IO DO NEG give:I:IMP:SG =3MS:DO NEG
‘Do not give (SG) it (M) to him/her!’

An example with the ventive repetition (IV-DV model):

(50) *u* *ˆs* *d* *i* *takk* *=ih* *ˆiḍ* *ši*
NEG 3S:IO VC NEG give:I:IMP:SG =3MS:DO ˆVC NEG
‘Do not give (SG) it (M) to him/her (here)!’

13.4.3. Clitic Behavior in the Sahel Dialect of Ketama

Some deviations from the usual model of clitic behavior are found only in the Sahel dialect of Ketama. These deviations are of two kinds: 1) restricted to the 2P verb forms, and 2) restricted to the Imperfective Negative and prohibitive. Divergent clitic behavior in Imperfective Negative is reminiscent of Taghzut (cf. Section 12.5), albeit the negator used with the Imperfective in Sahel is *u* and not *ula*. The deviations from the usual model are not the same as found in Beni Aisi and Beni Hmed.

13.4.3.1. 2P Verb Forms

The second plural verb forms show some deviations from the usual model of clitic fronting, that are not found in other persons. For example, in other persons, when a verb form contains a single ventive clitic, it is normally fronted and not repeated. This can be different in 2P verb forms. Some Ketama speakers – especially speakers of the Sahel dialect – accept, next to the regular form with the fronted single ventive (example *a*), a form with the postposed ventive (example *b*) or repeated ventive (example *c*). This variation is not found with persons other than 2P. For example:

(51) (a) *š-a* *d* *ˆek̲šm-em* (K: Sahel)
FT-NR VC ˆ(2:)enter:A-2P
(b) *š-a* *ˆt-k̲ešm-em* =*d* (K: Sahel)
FT-NR ˆ2-enter:A-2P =VC
(c) *š-a* *d* *ˆek̲šm-em* =*d* (K: Sahel)
FT-NR VC ˆ(2:)enter:A-2P =VC
'You (PL) will enter.'

The IO + ventive clitic combination is also normally fronted (CCF: IV- model). The only deviation from the regular IV- model is a (rare) IV-V model that is restricted to 2P verb forms in Sahel, e.g.

(52) *š-a* *ˆs=* *d* *ˆenni-m* =*d* (K: Sahel)
FT-NR ˆ3S:IO= VC ˆ(2:)say:A-2P =VC
'You (PL) will tell him/her.'

The PCF: I-D model is also exceptional, but grammatical in Sahel:

(53) *š-a* *ˆs=* *t-enni-m* =*d* (K: Sahel)
FT-NR ˆ3S:IO= 2-say:A-2P =VC
'You (PL) will tell him/her.'

13.4.3.2. Imperfective Negative and Prohibitive

A single clitic

Although clitic fronting (partial or complete) is normally obligatory in attraction contexts in Ketama, the Sahel dialect allows for postverbal clitics in Imperfective Negative forms. The same is found in Taghzut and Hmed, where clitics can be postposed in Imperfective Negative in combination with the negator *(u)la*. In Sahel, however, there is no specialized Imperfective negator, and the general *u* is used, or no preverbal negator in combination with the 3MS verb subject prefix *i-*, e.g.

(54) *(-)* *i-ḵeššem* *=d* *šay* (K: Sahel)
(u)la *y-ḵečč̣em* *=d* *šay* (T)
(u)la *y-ḵečč̣m* *=id* *šay* (H)
NEG 3MS-enter:I=VC NEG
'He does not enter.'

Also, in prohibitives, in all these varieties, clitics can remain postposed (with the general negator *u*), e.g.

(55) *u* *ḵeššm* *=id* *ši* (K: Sahel)~
u *ḵeššem* *=d* *ši* (K: Sahel)
NEG enter:I:IMP:SG=VC NEG
'Do not enter (SG) (here)!'

The optionality of clitic fronting in prohibitives might be explained by the parallel with the Imperfective, as prohibitives are based on the Imperfective verb stem. An alternative explanation lies in the special nature of prohibitives.[751]

Prohibitives that use the negator *ma* (with the Aorist verb form following the irrealis *a*) require clitic fronting across Ketama dialects, e.g.

(56) *ma* *(ˆa)* *d* *ˆḵešm-eḏ* *ši* (K)
NEG (NR) VC (ˆ2)enter:A-2S NEG
'Do not enter (SG) (here)!'

[751] It has been observed that clitics might behave differently in imperatives in the world's languages. See e.g. Moyna 1999 on Spanish clitics in such contexts.

Multiple clitics

In Sahel, there are different models for the DO + ventive clitic combination in negated Imperfective forms (where clitic fronting is optional). Complete clitic fronting (DV- model), as found in other Ketama dialects, is possible:

(57) *u* *h=* *d=* *i-takka* *š*
NEG 3S:DO=VC= 3MS-give:I NEG
'He is not giving it here'

The ventive can be repeated in a DV-V model:

(58) *u* *h=* *d=* *i-takka* *=d* *š* (K: Sahel)
NEG 3S:DO=VC= 3MS-give:I =VC NEG
'He is not giving it (M/F)'.

Both DO and ventive can be repeated in the DV-DV model:

(59) *u* *h=* *d=* *i-takka* *=hˆi* *š*
NEG 3S:DO=VC= 3MS-give:I =3MS:ˆVC NEG
'He is not giving it (M)'.

The table on the following page shows various possibilities for the Imperfective verb forms with the DO+ventive clitics in Sahel.[752] In some contexts, the variant other than CCF is preferred and might even be the only possible variant. This is true for the DO+ventive clitic combination, as well as for a single clitic. While the single clitic can be found either in a fronted or a postverbal position, for a combination of two clitics (DO+ventive), there are more variants: CCF (DV- model), PCF (D-V model), and CR. CR is represented by VR (DV-V) and DVR (DV-DV).[753]

Not all models are possible with all persons. Apparently, the interaction of clitics and the verb form plays a role here. Overall, it seems that the Sahel dialect avoids the combination of the 3S:DO clitic with the 2S/3FS/2P PNG prefix, as well as the combination of the ventive *d*+*t*- (the Imperfective) of the verb stem. The ventive *d* combines with the *t*- of the verb stem in 1S and 3P persons, as they have no PNG prefix, and also in the 2S/3FS/2P, where the PNG prefix is assimilated to the ventive.

[752] In this table (unlike in other tables), it was chosen to write each particle and clitic in its own slot.

[753] In the CR scenario, it is either the ventive clitic alone that is repeated, or the ventive clitic together with the DO clitic. DO clitic is not repeated without ventive repetition when the verb contains both clitics.

As a result, CCF (DV-) and CR (the DV-V and DV-DV models) are only possible in 3MS and 1P. For the remaining persons, clitics remain postposed (NCF).
Additionally, the PCF (the D-V model) is possible with 1S, 3MS, 1P and 3P. The D-V model is not possible with the 2S/3FS/2P verb forms, as the contact of 3S:DO and the PNG prefix of these forms is avoided. Instead, the clitics remain postverbal with these verb forms.

To summarize, for the (3S)DO + ventive clitic combination, Sahel avoids the sequence of 3S:DO and the 2S/3FS/2P PNG prefix, because in this case, the DO would become invisible. Also, the sequence of ventive *d* with the "problematic" PNG prefix or with the *t-* prefix of the verb is avoided. As a result, depending on the person, a certain construction is preferred.

3MS:DO + ventive with the verb 'to give' in IPF.NEG in Sahel

	NEG	DO	VC	PNG	VERB	PNG	DO	VC	NEG	Type	Model
1S	u				takki	-ḫˆ	ṯ	i	š	NCF	-DV
	u	h			takki	-ġ		d	š	PCF	D-V
2S	u			h-	takki	-t	t	i	š	NCF	-DV
3MS	u			y-	takka		h	i	š	NCF	-DV
	u	h	d	i-	takka				š	CCF	DV-
	u	h	d	i-	takka			d	š	VR	DV-V
	u	h	d	i-	takka		h	i	š	DVR	DV-DV
	u			y-	takk		ih	i	š	NCF	-DV
	u	h		i-	takka			d	š	PCF	D-V
3FS	u			h-	takka		h	i	š	NCF	-DV
	u			h-	takk		ih	i	š	NCF	-DV
1P	u			n-	takka		h	i	š	NCF	-DV
	u	h	d	n-	takka				š	CCF	DV-
	u	h	d	n-	takka			d	š	VR	DV-V
	u	h	d	n-	takka		h	i	š	DVR	DV-DV
	u	h		n-	takka			d	š	PCF	D-V
2P	u			h-	takka	-m	ṯ	i	š	NCF	-DV
3P	u				takka	-n	ṯ	i	š	NCF	-DV
	u	h			takka	-n		d	š	PCF	D-V

13.4.4. Divergent Clitic Behavior Outside Senhaja

Outside Senhaja, in Morocco, divergent clitic behavior has been found in Figuig (Kossmann 1997: 191, 272) and in Ghomara (Mourigh 2015: 322-323). In Figuig, as in Iche Sud Oranais (Kossmann 2010: 93), clitics show a divergent behavior when the ventive is combined with the first or second person DO. This is different from Senhaja. Ghomara shows both differences and similarities with the divergent models found in Senhaja. The major differences are that in Ghomara, it is possible to have postposed clitics even with the irrealis particle and that in Ghomara, the ventive can be repeated when it is the only clitic in the verb complex. The similarities are that both varieties have partial clitic fronting with a fronted IO and postposed DO, both varieties have the dummy DO, and in both varieties, the ventive can be repeated when combined with the IO and DO. Considering the fact that Ghomara and Ketama are geographically close (albeit separated by an Arabic-speaking area), the similarities between the varieties can be considered a shared innovation.

Outside Morocco, various deviations from the usual model of clitic fronting are found. In Algeria, some varieties of Kabyle (e.g. At Zmenzer, At Smail) show divergent clitic behavior. In At Zmenzer Kabyle (based on the speech of our language consultant, Sofiane Smaïl, as well as in the At Smail variety, as can be seen in some texts in Vincennes 1971), the DO clitic can be repeated in contexts where it becomes assimilated in the fronted position. In Kabyle of Bejaia, the ventive *d* can be left postposed in contexts of attraction, while it assimilates to the *t-* of the verb form if fronted (Aoumer 2011: 454). Some other divergent models of clitic behavior have been found in Tasahlit (Massinissa Garaoun, p.c.) and some varieties of Chaouia (Lafkioui & Merolla 2002: 22-29; Reesink 1979: 373). In some dialects of Aurès (Mercier 1896, Brugnatelli 1993: 236), repetition of DO is found. In Ngouça, both the DO and IO can be repeated (Delheure 1989, Delheure, Ochoa & Ould-Braham 2019). There are examples of divergent clitic behavior from Mzab, some of which are reminiscent of Ketama, e.g. the IV-DV model (Delheure 1989, Brugnatelli 1993: 236). Repetition of the ventive occurs in Bousemghoun variety of Sud Oranais (Kossmann 2010: 93). In this variety, the postverbal clitic follows the second part of the negation, and is thus separated from the verb. The clitic can be separated from the verb by a postverbal negator also in the Libyan Zwara (Serra 1964: 715-7, Brugnatelli 1993: 235). In the Igli variety of Sud Oranais, when the relative construction contains fronted elements as well as a preverbal particle, the linking element *a* occurs twice, on both sides of the attracted element, thus separating the fronted clitic from the verb. This recalls the Ketama prohibitives, with the negators on both sides of the fronted clitic.

The behavior of the verbal clitics in three varieties of Tunisian Berber (Guellala, Tamezret, and Douiret) has been described by Collins (1981-1982). There are differences between the varieties, but also some common rules. In Tamezret, in verb forms with two pronominal clitics, only the IO is fronted, while the DO remains postverbal, as in Ketama.

In Ghadames, it is possible to have a verbal clitic in the clause-initial position (Kossmann 2013b: 82), thus violating the Tobler Mussafia law. In some examples, the clitic can be separated from the verb. In Mali Tuareg, deictic clitics can be repeated, or pronominal clitics can undergo partial fronting, where the DO is fronted, and the IO is postposed (Heath 2005: 597, 614).

To sum up, many Berber varieties show different deviations from the usual model of clitic fronting. While deviations differ, there are some tendencies. Thus, there is a tendency to front IO and to keep other clitics (DO and ventive) postposed, or to repeat certain clitics. Repetition of the deictic clitics is especially frequent. Repetition of the DO is also found in several varieties. Repetition of the IO, on the other hand, is not found as frequently. Clitic repetition may be seen as a transition stage between the complete clitic fronting to the partial clitic fronting.

Looking at the deviations from the usual system in various Berber languages, we can conclude that there are some parallels with Ketama. Something similar is found, first of all, in Ghomara, but also in Mzab in Algeria and Tamezret in Tunisia, in that when there are two clitics (IO + DO), the DO can be left postposed. Moreover, if the ventive is also present, it is usually repeated in such constructions (the IV-DV model). While all these varieties are spoken in a relative isolation and have been heavily influenced by Arabic, it is unlikely that partial clitic fronting is a contact-induced changed, as clitics behave regularly in some other constructions. It is therefore more logical to assume that the origins of this construction must be sought within Berber.

Different factors might have played a role in the development of a new system. Some of them might be limited to a specific variety, while others might operate on a more general level. Not all theories have to be valid for all varieties. In the case of Ketama, the avoidance of ambiguity might have given rise to the new models of clitic behavior. Given the geographical distance between the areas in which the innovations took place, we assume that the innovations were not caused by contact between these varieties. Moreover, the precise patterns are different. Because the patterns are different, it is not likely that one theory will cover all the variation. However, it can be observed that in a number of varieties, various reanalysis phenomena might be responsible for the change in the clitic behavior.

13.5. Conclusions

In Ketama, clitic fronting does not follow the usual scheme, where all clitics are fronted together as an uninterrupted clitic chain (IO + DO + ventive). The usual scheme is found when the clitic chain consists of one pronominal clitic and a ventive (i.e. IO + ventive, or DO + ventive). For other combinations of clitics, there exists different models of clitic behavior depending on the context, the number and the nature of the clitics involved, and the dialect. For example, when the verb contains two pronominal clitics, typically, only the IO is fronted, while the DO is left postposed, resulting in a partial clitic fronting: IO = VERB = DO. In another construction, the DO is (seemingly) doubled, occurring on both sides of the verb (IO + DO = VERB = DO). However, the fronted DO clitic is an invariable *t*, unmarked for the gender and number, and it merely signals that the real DO is coming in a postverbal position. In such examples, the fronted DO can be analyzed as a dummy DO, or as a disambiguator. When the DO has the plural form in an IO + DO clitic chain, there are differences depending on the number of the IO pronoun. With a singular IO, we find (depending on the dialect): the partial clitic fronting (IO = VERB = DO), with or without the dummy DO; the DO repetition (IO + DO + t = VERB = DO), or the complete clitic fronting (IO + DO + t = VERB). In the last two scenarios, the dummy DO is obligatory. With plural IO clitics, only the partial clitic fronting is possible (IO = VERB = DO), with or without the DO.

When the verb form contains all the three clitics, the most typical scenario is the partial clitic fronting combined with the ventive repetition: IO + ventive = VERB = DO + ventive. Other constructions are also possible (with the ventive on either side of the verb: fronted following the IO, or postposed following the DO). The complete clitic fronting (IO + DO + ventive = VERB) is also possible, but rare. Again, there are dialectal differences: some models are preferred in specific dialects. Ketama uses a specialized prohibitive *i*, that cannot be followed by a clitic. Instead, the scheme is: *u* + CLITIC(S) + *i* + VERB + NEG *ši*, as also found in Seddat and (as a possibility) in Taghzut (with an optional *i*). This is the only construction where the clitic is separated from the verb, and it is not clear what functions as a clitic host. Clitics in prohibitives follow the same rules as in other verbal forms, with partial clitic fronting and ventive doubling under specified conditions (as described above).
In the Lmekhzen dialect, with the third person DO clitics in combination with the ventive, the ventive is fronted, and the DO + ventive is postposed. This construction allows for the distinction in the gender of the DO pronoun, which is otherwise unmarked in the complete fronting construction.

In the Sahel dialect of Ketama, clitics behave like in Taghzut, as they show divergent behavior in Imperfective Negative and prohibitive, albeit the negator used is *u* and not *ula*. The deviations from the usual model are not like in Beni Aisi and Beni Hmed, as clitics can remain postposed in attraction contexts or the ventive clitic can be repeated even when it is the only clitic, or can be fronted as the only clitic in an interrupted clitic chain, etc. Another possibility is to have divergent behavior of the clitics with 2P verb forms (also outside the Imperfective). Such deviations from the usual model probably have to do with morphophonology.

The following table summarizes the existing models. The number in parenthesis in the column "type" indicates the number of the clitics in the construction. The examples given in parentheses are rare, but grammatical.

Models of clitic behavior in Ketama in attraction contexts

Type	Model	Dialect	Example	Translation
NCF(1)	-V	S	u h-keššm-em = d š	'You (PL) do not enter'
NCF(2)	-DV	S	u y-takka = hˆed š	'He doesn't giving it (F)'
CCF(1)	V-	all	š-a dˆkešm-em	'You (PL)'ll enter (here)'
	D-	all	š-a m = i-ẓeṛ	'He'll see you (FS)'
	I-	all	š-aˆm = i-k	'He'll give to you (FS)'
CCF(2)	DV-	all	š-a m = d = i-ẓeṛ	'He'll see you (FS)'
	IV-	all	š-aˆm = d = i-k	'He'll give to you (FS)'
	ID-	S, L	š-aˆs = t = i-k	'He'll give it to him'
	IDt-	S (L)	š-aˆs = en = t = y-ek	'He'll give them to him
CCF(3)	IDV-	S	š-aˆs = tˆiḍ = i-k	'He'll give it to him'
PCF(2)	I-D	BA/H	š-aˆs = i-kk = iṭ	'He'll give it to him'
	D-V	S	u h = i-takka = d š	'Do not give [SG] it!'
PCF(3)	(I-DV)	(BA/H)	š-aˆs = i-kk = ihˆiḍ	'He'll give it to him'
	(IV-D)	(BA/H)	š-aˆs = d = i-kk = iṭ	'He'll give it to him'
VR(1)	(V-V)	(BA/H)	(š-aˆdˆekšm-em = d)[754]	'You (PL)'ll enter (here)'
VR(2)	DV-V	S	u = h = d = i-takka = d š	'He does not give it'
	V-DV	L	š-a d = i-ẓṛ = ihˆed	'He'll see her'
PCF + *t*	It-D	L, BA/H	š-aˆs = t = i-kk = iṭ	'He'll give it to him'
	It-D	L, BA/H	š-aˆs = t = i-kk = ihen	'He'll give them to him'
DR(2)	IDt-D	S (L)	š-aˆs = en = t = i-kk = ihen	'He'llgive them to him'
DVR(2)	DV-DV	S	u h = d = i-takka = hˆi š	'He does not give it'
VR(3)	IV-DV	BA/H	š-aˆs = d = i-kk = ihˆiḍ	'He'll give it to him'

[754] Only with 2P verb forms.

The following table is devoted specifically to prohibitives in Beni Aisi and Beni Hmed dialects, where the fronted clitics are separated from the verb by the prohibitive *i*.

Models of clitic behavior in Ketama prohibitives

Model	Example	Translation
V-	u d i k̲k̲eššem ši	'Do not enter here!'
I-	uˆyt̲ i qqaṛ ši	'Do not say to me!'
D-	u h i taǧǧa ši	'Do not let him!'
DV-	u h d i tak ši	'Do not give it here!'
ID-	uˆs t i tak ši	'Do not give it to him!'
I-D	uˆyt̲ i qqr=it ši	'Do not say it to me!'
IV-DV	uˆs d i takkˆihˆid̲ ši	'Do not give it to him here!'

The major factors that influence the behavior of the clitics were established:

1) Syntactic context: unmarked vs. marked;
2) The number of the clitics involved;
- The nature of the clitics involved: the IO + DO clitic chain is usually split, while other combinations of two clitics are normally not split;
- Ventive and DO clitics can be repeated, while IO clitic cannot.
3) The form of the clitic: person and number. With some combinations of clitics, the form of the clitic matters.
- For the DO + ventive, the ventive can be repeated in Lmekhzen (V-DV model) only if the DO clitic is in the third person.
- For the IO + DO, the number of the DO clitic matters. If the DO is plural, the CCF without the dummy DO is impossible. The form of the IO clitic also matters for the IO + 3P:DO clitic combination. The CCF + *t* construction is incompatible with all plural forms of IO clitics. The distinction between singular and plural DO is also important for the combination of three clitics: CCF is incompatible with the plural forms of DO.

There are dialectal differences in the behavior of clitics. Some models are only found in specific dialects, or are more frequent in some dialects than in others. For example, ventive repetition with the DO + ventive (the V-DV model) occurs in Lmekhzen. For the IO + 3S:DO clitic combination, the PCF (the I-D model) is usually found in Beni Aisi/Beni Hmed, while PCF + *t* (the It-D model) is frequent in Lmekhzen. The CCF (the ID- model) is the only grammatical variant in Sahel. For the IO + 3P:DO, the PCF (I-D)

is the preferred option in Beni Aisi/Beni Hmed, the PCF + *t* (It-D) is frequent in Lmekhzen, and the DR (DO repetition) is used in Sahel, as well as the CCF + *t* (IDt-model). Generally, for the IO + DO clitic combination, the CCF is found predominantly in Sahel (wherever possible) while Beni Aisi and Beni Hmed have the tendency to split the clitic complex.

It is argued in this thesis that the divergent clitic behavior in Ketama may be linked to the desire to avoid ambiguity. It is linked to morphophonology. In many cases, the inserted "extra" elements (such as the dummy DO or the prohibitive *i*) have a historical background, but can synchronically be said to serve as dividers between the morphemes, thus serving as disambiguators.
Similarly, keeping the clitic postposed or repeating it helps to avoid ambiguity in some contexts. Clitic repetition can be seen as the unintended result of the transition from the older system (CCF) to the newer system (PCF).

Some new models of clitic behavior can be analyzed as a result of the reanalysis of the original form. The dummy DO is a result of the reanalysis of the fronted 3S:DO clitic, which gradually became devoid of its original meaning, and hence a "real" DO needs to appear in the postverbal position. This is combined with the fact that when fronted, 3P:DO (*ten* > *ṯen* > *hen* > *(e)n*) are ambiguous when following some IO clitics. In sum, there are different paths that could lead to the origin of the new constructions. The ambiguity in some constructions have led to the reanalysis of the elements involved. Subsequently, the reanalysis led to the emergence of new constructions, which in many cases avoid the ambiguity. Thus, the main driving forces behind the divergent clitic behavior in Ketama are: reanalysis, grammaticalization, and the drive to avoid ambiguity.

14. Morphophonology of the Verbal Complex

This chapter is devoted to the morphophonology of the verbal complex (as defined in Chapter 5: the verb form, including the verbal clitics and particles). Section 14.1 treats the verb without the clitics. There are assimilations between the subject prefixes and the stem. The combination of clitics in a clitic chain is discussed in Section 14.2. In particular, the third person DO clitic pronouns in combination with the ventive are discussed in Section 14.2.1. The interaction between clitics and the PNG affixes follows (Section 14.3). The shape of the clitic often influences the verb form, while the verb form often influences the shape of the clitic in Berber. There are different kinds of assimilations, as well as allomorphy in the clitics. Some assimilations are regular, such as the regressive assimilation in voice in alveolar consonants (cf. Section 2.4.1.1 in Phonology), while in the case of the fronted ventive, exceptionally, the assimilation can be progressive.

14.1. The Verb without Clitics

14.1.1. The Verb Stem and the Prefixes

14.1.1.1. The verb subject prefix *n-* and the verb stem in *l-, r*

The consonant *n* is special and can undergo different assimilations (cf. Section 2.4.1.3). The 1P subject prefix *n-* can assimilate to the following *l-* of the verb stem, e.g.

(1) *š-a n-les* ~ *š-a lˆles* (H)
FT-NR 1P-wear:A
'We will wear (clothes).'

When the verbal subject prefix *n-* is followed by the *r-/ṛ* of the verb stem, this may (optionally) result in a geminated *rr/ṛṛ* in Ketama and Hmed, but the assimilation usually does not take place in Zerqet, e.g.

Ketama/Hmed	**Zerqet**	**Translation**
š-a n-erfes ~ š-a rˆrfes	š-a n-erfes	we will knead
š-a n-ṛeẓ ~ š-a ṛˆṛeẓ	š-a n-ṛeẓ	we will break

14.1.1.2. The verb stem in *d-* and the prefix *t-* (IPF, PASS, or subject PNG prefix)

There is regressive assimilation in voice: the voiced *d* of the verb stem makes the preceding *t* voiced. This effects the Imperfective prefix *t-* and the subject marker *t-* (2S, 3FS, and 2P) in most Senhaja varieties (including Ketama, Zerqet), e.g.

- *t+duwwaḫ* > *dˆduwwaḫ* (most Snh.), IPF stem of *duwwaḫ* 'to make dizzy'.

In Hmed/Taghzut, the IPF prefix is *ṭ-*, which does not undergo assimilation, e.g.

- *ṭ+duwwaḫ* > *ṭ-duwwaḫ*, IPF stem of *duwwaḫ* 'to make dizzy'.

In most Senhaja varieties with the exception of Hmed and Taghzut, the same assimilation rule applies to the 2S/3FS/2P verb subject prefix *t-*.[755] Thus, in Zerqet, Ketama, and most Senhaja varieties, we find:

- *š-aˆt-duwwaḫ* > *š-aˆd-duwwaḫ* 'she will make dizzy'.[756]

In Hmed, the 2S/3FS/2P subject prefix *t-* is not assimilated in voice to the following *d* of the verb stem, e.g.

(2) *š-a ˆt-deḫḫel*
FT-NR ˆ3FS-make.enter:A
'she will make enter' (H)

In this variety, this form with the sequence *d+d* would be interpreted as including the preverbal ventive. In the other varieties where assimilation of the subject prefix *t-* (>*d*) takes place, the forms with the fronted ventive and without it merge. Compare the following example in Hmed vs. Zerqet (in Zerqet homophonous with the same sentence without a ventive):

(3) *š-a d ˆØˆdeḫḫel* (< *š-a d=t-deḫḫel*)
FT-NR VC ˆ3FSˆmake.enter:A
'She will make enter here' (H/Z)

In the Perfective, in most Senhaja varieties, the form of this subject prefix is *ṯ-* (Ketama has *ṯ* > *h-/a-/ah-*). This does not assimilate to the following *d* in voice, e.g.

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[755] This form of the subject prefix is used in the Aorist following the irrealis marker *a* (originally *aḏ*) and is itself a result of assimilation from the original *aḏ* + *ṯ-* > *aˆt-*.

[756] The form *šatduwweḫ* would rather be interpreted in these varieties as containing a fronted 3S:DO clitic, i.e. *š-aˆtˆduwwaḫ* (<*š-a t=t-duwwaḫ* FTˆNR 3S:DO=3FS-make.dizzy:A) 'she will make him/her dizzy'.

- *ṯ-duwwaḫ* (most Snh.) ‘she made dizzy’ (Ketama *(a)h-duwwaḫ*).

The situation is different in Zerqet 3FS Imperfective forms. Here, when the subject marker *ṯ-* is followed by the already assimilated IPF prefix *d-* (<*t-*), it is fully assimilated, and the verb form with the 3FS subject prefix is identical to the bare IPF verb stem, e.g.

- *dduwwaḫ* ‘she makes dizzy’ (<*ṯ-dduwwaḫ* < *ṯ-t-duwwaḫ*), identical with the IPF stem *dduwwaḫ* (<*t-duwwaḫ*).

In Ketama, the prefix in IPF and PERF forms does not undergo assimilation:

- *(a)h-dduwwaḫ* ‘she makes dizzy’.

In the Hmed variety, the situation is similar to Zerqet in that the bare IPF verb stem (with the IPF prefix *ṭ-*) is homophonous with the IPF verb stem with the 3FS prefix assimilated and degeminated:

- *ṭduwwaḫ* ‘she makes dizzy’ (<*ṯ-ṭduwwaḫ*), identical with the IPF stem *ṭduwwaḫ*.

The passive prefix *t(t)-* behaves differently from the Imperfective prefix *t(t)-* in that it normally does not assimilate to the following *d* of the verb stem, e.g. *t(t)deḫḫel*, passive of *deḫḫel* ‘to make enter’ (most Snh.). The following table summarizes the forms are contrasts Ketama/Zerqet (assimilating varieties) and Hmed (non-assimilating variety) when it comes to the assimilation of the IPF prefix *t-* to the *d-* of the verb stem. The behavior of the 3FS subject marker is also illustrated. The PERF (non-assimilated) forms are provided for comparison.

Assimilation of the IPF *t-* prefix in Ketama/Zerqet vs. Hmed

Original form > Realization	**Translation**	**Variety**
š-aˆt-deḫḫel > š-aˆdˆdeḫḫel	she will make enter	K/Z
š-aˆt-deḫḫel	she will make enter	H
š-a d=ṯ-deḫḫel> š-a dˆdeḫḫel	she will make enter here	pan-Snh
t-deḫḫal>ddeḫḫal	make enter (IPF)	K/Z
ṯ-ddeḫḫal>ddeḫḫal	she makes enter	Z
(a)h-ddeḫḫal	she makes enter	K
ṭdeḫḫal	make enter (IPF)	H
ṯ-ṭdeḫḫal > ṭdeḫḫal	she makes enter	H
ṯ-deḫḫel	she made enter	H/Z
(a)h-deḫḫel	she made enter	K

In Ketama and Hmed, the AOR stem of the verb ‘to go’ is *ddu*, starting in a long *dd*. In this case, assimilation of the subject prefix *t-* is optional in Ketama and Hmed, there is no assimilation in this case:

- *š-aˆt-ddu* ~ *š-aˆddu* (K/H) ‘she will go’.

The subject prefix *t-* also assimilates to the following *ḍ*, e.g.

- *ḍreḥ* ‘to scoop bread’, *š-aˆḍˆḍreḥ* ‘she will scoop bread’.

If the verb stem starts in a spirantized *d̲* or *ḍ̲*, or in another voiced consonant, there is no assimilation.

14.1.2. The Verb and the Particles

The presence of verbal particles can influence the shape of the verbal affixes.

14.1.2.1. 2S/3FS/2P verb subject prefix and the irrealis *ad̲*

The irrealis particle is originally *ad̲*, although the final *-d̲* is often lost, unless in an intervocalic position. In some forms, the final *-d̲* is only visible in the resulting assimilation. With 2S/3FS/2P verb forms (underlyingly, prefix *t̲-*), the final *-d̲* is visible only in the assimilated form: *d̲* + *t̲* > *t* (without gemination), e.g.

(4) *š-a ˆt-k̲erz-ed̲* (pan-Snh.)
FT-NR ˆ2-plow:A-2S
‘You (SG) will plow’.

Compare the corresponding forms in the Perfective:

(5) *t̲-k̲erz-ed̲* (H/Z)
h-k̲erz-ed̲ (K)
2-plow:P-2S
‘You (SG) plowed.’

14.1.2.2. 3MS subject suffix and preverbal particles

3MS subject prefix has different realizations depending on the context (largely related to the preverbal particles). In the Perfective (positive), the prefix is realized as *i-* across varieties, and this is the original form of the prefix. In the Aorist, following the irrealis

particle, there are different realizations depending on the variety (and the analysis, cf. Section 3.4.1.2), e.g.

(6) *š-a* *y-ek̲šem* (K)
š-a *d̲-ek̲šem* (T/H)
š-ad̲ *i-k̲šem* (Z)
FT-NR 3MS-enter:A
'He will enter.'

In the Perfective Negative, we find:

(7) *u* *y-ek̲šem* *šay* (K)~
(-) *i-k̲šem* *šay* (K)
u *d̲-ek̲šem* *š* (T/H)
ud̲ *i-k̲šem* *š* (Z)
NEG 3MS-enter:P NEG
'He did not enter.'

14.1.2.3. 1S subject suffix and postverbal particle (Ketama)

The presence of a postverbal negator, just as the presence of a postverbal clitic (cf. Section 14.3.1.2), makes the final *-ġ* of 1S subject suffix *-aġ* re-appear, e.g.

(8) (a) *k̲ešm-a* (K)
enter:P-1S
'I entered.'
(b) *u* *k̲ešm-aġˆ* *šay* (K)
NEG enter:P-1Sˆ NEG
'I did not enter.'

14.2. The Clitic Chain

14.2.1. Allomorphy in DO Clitics and the Ventive

14.2.1.1. Third Person Singular DO Clitics and the Ventive

1) Postverbal third person singular DO clitics and the ventive

There are specific forms of the ventive when following the third person singular DO clitic pronouns, that show dialectal variation. Most common forms are *id, id̲,* and *ed*. They are shown in the following table. Note that following the 3MS:DO, the ventive is

realized with the spirantized *ḏ* in Ketama and Zerqet (K/Z *ṯ=iḏ,* Ketama also *h=iḏ*).[757] The spirantized pronunciation of the ventive following DO clitics is also (optionally) found in Taghzut. In Zerqet, the form of the ventive is usually also *iḏ* also following the 3FS:DO clitic *t* (by analogy with the 3MS:DO). In the Ketama dialects of Sahel and Lmekhzen, the final *-ḏ* of the ventive following 3MS:DO can be absent, so that 3MS:DO + ventive is realized as *ṯ=i, h=i*. With the 3FS:DO clitic, the ventive is realized as *ed* in Ketama (the final *d* is not spirantized), but the clitic itself is spirantized (*ṯ,* or *h* in an intervocalic position: *ṯˆed, hˆed*).[758] It is therefore the form of the ventive that distinguishes 3MS:DO and 3FS:DO in Ketama. Examples follow.

Postverbal third person singular DO clitics with the ventive

DO + ventive	**K**	**S**	**T/H**	**B**	**Z**
3MS + ventive	ṯˆi(ḏ), hˆi(ḏ)	ṯˆid	ṯˆid	ṯˆiḏ	ṯˆiḏ
3FS + ventive	ṯˆed, hˆed	tˆid	ṭˆid	tˆid	tˆiḏ (~tˆid)

3MS:DO + ventive

(9) *ẓṛa-n* *=ṯ* *ˆiḏ* (K/Z)
ẓṛa-n *=ṯ* *ˆi* (K-Sahel/Lmekhzen)
ẓṛa-n *=ṯ* *ˆid* (H)
see:P-3P =3MS:DO ˆVC
'They saw him (from far).'

(10) *i-ẓṛa* *=h* *ˆiḏ* (K)
i-ẓṛa *=h* *ˆi* (K-Sahel/Lmekhzen)
i-ẓṛa *=ṯ* *ˆid* (H)
i-ẓṛa *=ṯ* *ˆiḏ* (Z)
3MS-see:P =3MS:DO ˆVC
'He saw him (from far).'

3FS:DO + ventive

(11) *ẓṛa-n* *=ṯ* *ˆed* (K)
ẓṛa-n *=t* *ˆiḏ* (Z)
ẓṛa-n *=ṭ* *ˆid* (H)
see:P-3P =3FS:DO ˆVC
'They saw her (from far).'

[757] The 3MS:DO clitic is realized as *h* in an intervocalic position in Ketama.

[758] Historically, 3FS:DO was *tet*. The current *ṯˆed* is a result of assimilation: *tet + d > tˆed* (*> ṯˆed > hˆed*). In other Senhaja varieties, the form of the ventive following the 3MS:DO and 3FS:DO is the same, which must be the result of analogy.

(12) *i-ẓṛa* *=h* *ˆed* (K)
i-ẓṛa *=ṭ* *ˆid* (H)
i-ẓṛa *=t* *ˆid̲* (Z)
3MS-see:P =3FS:DO ˆVC
'He saw her (from far).'

Compare the following forms with the assimilation of 1S subject suffix *-ġ*:

(13) (a) *wwi-ẖˆ* *ẖ* *ˆid̲* (K)
take:P-1Sˆ 3MS:DO ˆVC
'I brought him here.'
(b) *wwi-ẖˆ* *ẖ* *ˆed* (K)
take:P-1Sˆ 3FS:DO ˆVC
'I brought her here.'

2) Preverbal third person singular DO clitics and the ventive

For the preverbal third person DO clitics and the ventive, the forms are as follows:

DO + ventive	**K**	**S**	**T/H**	**B**	**Z**
3MS + ventive	h = d	t̲ = id	tˆid	t̲ = id	t̲ = id̲ (~d̲ = id̲)
3FS + ventive	h = d	t = id	ṭ = id	t = id	t = id̲ (~tˆid, dˆid)

The major differences when compared to the postverbal clitics are:

1) there is no distinction between the 3MS:DO + VC and 3FS:DO + VC in Ketama (the ventive is realized as *d* in both cases);
2) in Taghzut and Hmed, the fronted 3MS:DO clitic is realized as *t* (not spirantized), vs. postverbal *t̲*, but remains distinguished from the 3FS:DO *ṭ*;
3) in Zerqet, in fronting contexts (different from the postverbal position), there is optional distant assimilation of the DO clitic and the ventive.[759] For example:

(14) *š-a* *h=* *d=* *i-ẓeṛ* (K)
š-a *t* *ˆid=* *i-ẓeṛ* (H)
š-a *t̲* *ˆid̲=* *i-ẓeṛ* (Z)~
š-a *d̲* *ˆid̲=* *i-ẓeṛ* (Z)
FT-NR 3MS:DO= VC= 3MS-see:A
'He will see him (from far).'

[759] The same phenomenon is found in Ghomara (Mourigh 2015: 325-326), where, however, it is not restricted to the preverbal position.

(15) *š-a* *h=* *d=* *i-ẓeṛ* (K)
š-a *ṭ* *ˆid=* *i-ẓeṛ* (H)
š-a *t=* *ˆiḏ=* *i-ẓeṛ* (Z) ~
š-a *d* *ˆid=* *i-ẓeṛ* (Z)
FT-NR 3FS:DO= VC= 3MS-see:A
'He will see her (from far).'

14.2.1.2. Non-third Person DO Clitics and the Ventive

1) Second Person Singular DO Clitics and the Ventive

In Taghzut and Hmed, the ventive is realized as *id* also following 2MS:DO (and in Taghzut also following 2FS:DO), in both postverbal and preverbal positions, e.g.[760]

(16) *i-ẓṛa* *=k=* *id* (T/H)
3MS-see:P =2MS:DO =VC
'He saw you (MS).'

(17) *š-a* *k=* *id=* *i-mmaher* (T)
š-a *k=* *id=* *i-ẓeṛ* (H)
FT-NR 2MS:DO= VC= 3MS-see:A
'He will see you (MS).'

2) Plural DO Clitics and the Ventive

a) Third person plural DO clitic and the ventive

The combination of the third person plural DO clitic and the ventive in a postverbal position is regular (*ṯen=d,* Ketama *hen=d* when following a vowel):

(18) *i-ẓṛa* *=hen* *=d* (K)
i-ẓṛa *=ṯen* *=d* (the rest of Snh.)
3MS-see:P =3P:DO=VC
'He saw them (from far).'

[760] Note that the ventive is realized as *d* following the 2MS:IO, which is distinguished from the 2MS:DO also by the fricative *ḵ*. See Section 12.3 for the complete paradigm of the DO and IO clitics with the ventive in Hmed.

In a preverbal position, 3P:DO is followed by the ventive *d* in most varieties, and by *id* in Taghzut and parts of Hmed (Imugzan dialect). In Zerqet, a long-distance assimilation is optional: *ṯen=d ~ ḏenˆd*. For example:

(19) *š-a* *hen=* *d=* *y-awi* (K/H)
š-a *tn=* *id=* *y-awi* (T/H-Imugzan)
š-a *ṯen=* *d=* *y-awi* (S/B/Z)
š-a *ḏenˆ* *d=* *y-awi* (Z)
FT-NR 3P:DO=VC= 3MS-take:A
'He will bring them (here).'

b) 1P:DO and 2P:DO and the ventive

Besides the 3P:DO, the Hmed variety optionally allows for the ventive *id* (alongside a more general *d*) after the 1P and 2P clitics in a fronted position, e.g.

(20) *š-a* *ġen=* *d=* *i-ẓeṛ* (H) ~
š-a *ġn=* *id=* *i-ẓeṛ* (H)
FT-NR 1P:DO=VC= 3MS-ser:A
'He will see us.'
(21) *š-a* *k^{w}en=* *d=* *i-ẓeṛ* (H) ~
š-a *k^{w}n=* *id=* *i-ẓeṛ* (H)
FT-NR 2P:DO=VC= 3MS-ser:A
'He will see you (PL).'

14.2.2. Assimilations in the Clitic Chain

14.2.2.1. Pronominal Clitics and the Ventive

In Ketama, the postverbal 1P:DO/IO is realized as *na*, but is *naġˆd* when in combination with the ventive, e.g.[761]

(22) *i-ẓṛa* *=(ya)na* (K)
3MS-see:P =1P:DO
'He saw us.'
(23) *i-ẓṛa* *=(ya)naġˆ* *d* (K)
3MS-see:P =1P:DO VC
'He saw us (from far).'

[761] Cf. Section 14.3.1.2 on the 1S subject suffix *-a* > *aġ* when in combination with the clitics.

When the pronominal clitics are followed by the ventive, there can be assimilation in voice, e.g. the 3S:IO *as* can be realized as *az* before *d*, and the 2MS (DO/IO) clitic *ak̲* can be realized as *ag̲* before *d* in Ketama and Zerqet.[762] This assimilation can take place both in postverbal and preverbal position. This assimilation is not noted in the present study (outside the present section). In Hmed, the assimilation does not take place. For example:

3S:IO + ventive

(24) *i-kka* *ˆs* =*d* (K/H/Z)
i-kka *ˆzˆ* *d* (K/Z)
3MS-give:P 3S:IO=VC
'He gave to him/her.'

(25) *š-a* *ˆs=* *d=* *i-k* (K/H/Z)
š-a *ˆzˆ* *d=* *i-k* (K/Z)
FT-NR ˆ3S:IO=VC= 3MS-give:A
'He will give to him/her.'

2MS:IO + ventive

(26) *i-kka* *ˆk̲* =*d* (K/H/Z)
i-kka *ˆg̲* *ˆd* (K/Z)
3MS-give:P ˆ2MS:IO =VC
'He gave to you (MS).'

(27) *š-a* *ˆk̲=* *d=* *i-k* (K/H/Z)
š-a *ˆg̲=* *d=* *i-k* (K/Z)
FT-NR ˆ2MS:IO= VC= 3MS-give:A
'He will give to you (MS).'

3P:IO + ventive

In Zerqet, long-distance assimilation of *s* in 3P:IO clitic *asen* to the ventive can (optionally) take place, probably by analogy with the 3S:IO *as* > *az*. This has not been found in other Senhaja varieties, but is found in Ghomara (Mourigh 2015: 55). This happens only when the clitics are fronted. Compare the following examples (postverbal forms are provided for comparison):

[762] The sound *g̲* is otherwise rare in Ketama and Zerqet.

Preverbal ventive	**Postverbal ventive**
š-a ˆsen ˆd= y-awi ~	*i-wwy =asen =d*
š-a ˆzen ˆd= y-awi	(**iwwy =azen =d*)
FT-NR ˆ3P:IOˆVC=3MS-take:A	3MS-take:P=3P:IO=VC
'He will bring for them.'	'He brought for them.'

14.2.2.2. The IO and DO Clitics Combination

In Ketama, when the 3MS:DO clitic *ṯ* follows an IO clitic, it can become *t* (especially in Beni Hmed, Sahel, and Lmekhzen dialects), thus merging with the 3FS:DO clitic *t*. The distinction is usually maintained in the dialect of Beni Aisi, e.g.

(28) *i-kka ˆs =ṯ* (K: Beni Aisi)
3MS-give:Pˆ3S:IO =3MS:DO
'He gave it (M) to him/her.'

(29) *i-kka ˆs =t* (K)
3MS-give:Pˆ3S:IO =3S:DO
'He gave it (M=F) to him/her.'

(30) *i-kka ˆs =t* (K: Beni Aisi)
3MS-give:Pˆ3S:IO =3FS:DO
'He gave it (F) to him/her.'

When a third person DO clitic follows the 1P:IO clitic (Zerqet *naġ*, Ketama *na*, underlyingly *naġ*), there is assimilation of the final *-ġ* to the following consonant in voice in Ketama and Zerqet, while in Hmed, the forms do not assimilate (cf. Section 12.3.2.1 for the complete paradigm). Furthermore, in Ketama, the initial consonant of the third person DO clitic can (optionally) assimilate to the final (devoiced) *ḫ* of the 1P:IO clitic. In this case, the 3MS:DO and 3FS:DO clitic merge. Thus:

1P:IO *naġ* and third person DO clitics

Variety	**+ 3MS:DO**	**+3FS:DO**	**+3P:DO**
K/Z	naḫˆṯ	naḫˆt	naḫˆṯen
K	na(ḫ)ˆḫ	na(ḫ)ˆḫ	naḫˆḫen
H	naġ=ṯ	naġ=ṭ	naġ=ṯen

The following table shows the forms with the ventive (cf. Section 12.3.2.2 for the complete paradigm):

1P:IO *naġ* + third person DO clitics + the ventive

Variety	+ 3MS:DO	+3FS:DO	+3P:DO
K	naḫˆṯˆiḏ	naḫˆtˆed	naḫˆṯen=d
K	naḫˆḫˆiḏ	naḫˆḫˆed	naḫˆḫen=d
Z	naḫˆṯˆiḏ	naḫˆtˆiḏ	naḫˆṯen=d
H	naġ=ṯ=iḏ	naġ=ṯ=id	naġ=ṯen=d

When an IO clitic is followed by a 3P:DO clitic in a fronted position, the 3P:DO is realized as *en* in Ketama in those dialects that accept IO+DO sequence (Sahel/Lmekhzen).[763] In Zerqet, the 3P:DO is *ṯen*, as usual, and in Hmed, it is either *en* and *hn*:

(31) *š-a* *ˆk̲=* *en=* *y-ek* (K)
š-a *ˆk̲=* *eṯn=* *i-k* (Z)
š-a *ˆk̲=* *(eh)n=* *i-k* (H)
FT-NR ˆ2MS :IO= 3P:DO=3MS-give:A
'He will give them to you (MS).'

14.3. The Clitics and the Verb

Besides interacting between themselves, the verbal clitics interact with the verb form: there is interaction between the PNG suffixes and postverbal clitics (Section 14.3.1), and between the PNG prefixes and fronted clitics (Section 14.3.2). Also, there is interaction between the clitics and the verb stem or particles. As discussed in Section 2.4.2 in Phonology, when a V-final verb stem is followed by a V-initial clitic, two strategies are possible: either the vowels coalesce, or a semivowel is inserted (hiatustilger), e.g. the underlying *i-nna* + *as* (3MS-say:P + 3S:IO) can result in *innas* (K/H/Z) or *innayas* (Z, parts of Ketama, but not Hmed) 'he told him'. The initial vowel in pronominal clitics (except the third person DO) is elided after the vowel of the preceding preverbal element (e.g. the negator *u*, the future *š-a*, the relative marker *a*, etc.), or the vowels coalesce. For example:

(32) *u* *k̲=* *i-wwi* *š* (K/Z)
NEG 2MS:DO/IO =3MS-take:P NEG
'He did not take you (MS).'/'He did not take (something) to you (MS).'

[763] The IO+DO clitic chain is usually split in attraction contexts in Ketama, cf. Section 13.2.

(33) *š-aˆ* *(a)s=* *y-en* (K)
FT-NR ˆ3S:IO= 3MS-say:A
'He will tell him/her.'

In those rare cases where the fronted clitic is not preceded by a vowel, which is possible in Zerqet after some conjunctions, the fronted clitic is V-initial (also for the DO clitics), e.g.

(34) *amis* *aḵ=* *i-ẓṛa* (Z)
when 2MS= 3MS-see:P
'When he saw you.'

14.3.1. PNG Suffixes and Postverbal Clitics

14.3.1.1. Postverbal Clitics and Schwa Retention

A number of subject suffixes that are normally realized with a schwa, such as e.g. 3P suffix *-en*, change schwa to *a* when followed by a V-initial clitic in Ketama. This is due to the avoidance of a schwa in an open syllable.[764] In other varieties, the verbal form is resyllabified. Compare:

(35) (a) *ṣeṛṛḏ-aġ* (K/H/Z)
send:P-1S
'I sent.'
(b) *ṣeṛṛḏ-aġ* *=as* (K)
ṣeṛṛeḏ-ġ *=as* (H/Z)
send:P-1S =3S:IO
'I sent to him/her.'

(36) (a) *šebbṛ-en* (K/H/Z)
grab:P-3P
'They grabbed.'
(b) *šebbṛ-an* *=ay* (K)
šebbeṛ-n *=ay* (H/Z)
grab:P-3P =1S:IO/DO
'They grabbed (for) me.'

[764] The same phenomenon is found in Ghomara (Mourigh 2015: 229).

14.3.1.2. 1S Subject Suffix and the Clitics

In Ketama, the 1S subject suffix with C-final verbs is realized as *-a* (< *-eġ*). The final *-ġ* of *-aġ* reappears when the suffix is followed by a clitic (pronoun or ventive).[765] Compare:

With IO

(37) (a) *weḵr-a* (K)
steal:P-1S
'I stole.'

(b) *weḵr-aġ* =*as* (K)
steal:P-1S =3S:IO
'I stole from him/her.'

With ventive

(38) (a) *ḵešm-a* (K)
enter:P-1S
'I entered.' ('I went in.')

(b) *ḵešm-aġˆ* *d* (K)
enter:P-1Sˆ VC
'I entered.' ('I came in.')

The final *-ġ* of the first person subject suffix *-aġ* assimilates to the following *ṯ* or *t* of the third person DO clitics in Ketama and Zerqet in voice, yielding *ḫ*. In Hmed, the 1S subject suffix remains *-aġ*. Furthermore, in Ketama, the initial consonant of the third person DO clitic can optionally assimilate to the *ḫ*. In this case, the 3MS:DO and 3FS:DO merge, and it is only the devoicing of the 1S *-ġ* suffix that signals the presence of the 3S:DO. For example:

(39) *ẓṛi-ġ* =*ṯ* > *ẓṛi-ḫˆṯ* (K/Z) > *ẓṛi-ḫˆ* (K)
ẓṛi-ġ =*ṯ* (H)
see:P-1S =3MS:DO
'I saw him.'

(40) *ẓṛi-ġ* =*t* > *ẓṛi-ḫˆt* (Z/K) > *ẓṛi-ḫˆ* (K)
ẓṛi-ġ =*ṯ* (H)
see:P-1S =3FS:DO
'I saw her.'

[765] The same happens with a postverbal negator, cf. Section 14.1.2.3. Compare also the realization of 1P:DO/IO clitic *na*, which is realized as *naġ* when in combination with another clitic (Section 14.2.2.2).

(41) *ẓri-ġ* *=ṯen* > *ẓri-ḫˆṯen* (K/Z) > *ẓri-ḫˆẖen* (K)
ẓri-ġ *=ṯen* (H)
see:P-1S =3P:DO
'I saw them.'

The following table compares the forms.

Assimilation of 1S subject marker *-ġ* to the 3rd person DO clitics

DO	Hmed	Zerqet/Ketama	Ketama	Translation
3MS	ẓri-ġ=ṯ	ẓri-ẖˆṯ	ẓri-ẖˆ(ẖ)	I saw him/it (F).
3FS	ẓri-ġ=ṭ	ẓri-ẖˆt	ẓri-ẖˆ(ẖ)	I saw her/it (F).
3P	ẓri-ġ=ṯen	ẓri-ẖˆṯen	ẓri-ẖˆẖen	I saw them.

14.3.1.3. 2S Subject Suffix and the Clitics

There is assimilation of the 2S subject suffix *-ḏ* with the following DO clitics and the ventive across Senhaja. With the singular DO clitics, the masculine and the feminine genders merge in Ketama and Zerqet, but remain distinguished in Hmed. The table and examples follow.

2S subject suffix in combination with the clitics

+ 3MS:DO	+3FS:DO		+3P:DO	+Ventive
K/H/Z	K/Z	H	K/H/Z	K/H/Z
-ḏ+ṯ > t	-ḏ+t > t	-ḏ+ṭ > ṭ	-ḏ+ṯen > -tˆten	-ḏ + d > d

(42) (a) *ṯ-ekkiˆ* *t* (Z)
h-ekkiˆ *t* (K)
2-give:P(:2S)ˆ 3S:DO
'You (SG) gave it (M/F).'
(b) *ṯ-ekkiˆ* *t* (H)
2-give:P(:2S)ˆ 3MS:DO
'You (SG) gave it (M).'
(c) *ṯ-ekkiˆ* *ṭ* (H)
2-give:P(:2S)ˆ 3FS:DO
'You (SG) gave it (F).'

(43) *ṯ-eẓṛi-t* *ˆten* (H/Z)
h-eẓṛi-t *ˆten* (K)
2-see:P-(2S) ˆ3MS :DO
'You (SG) saw them.'

With ventive

(44) *ṯ-kešm-e* *ˆd* (H/Z)
h-kešm-e *ˆd* (K)
2-enter:P-2S ˆVC
'You (SG) entered (here).'

In the last example, the 2S suffix *-ḏ* is completely assimilated to the ventive. As a result, some 2S and the 3FS verb forms might merge, as they have the same prefix and 3FS lacks any suffix, e.g.

(45) (a) *h-usiˆd* (K)
2-lift:P(:2S)ˆVC
'You (SG) lifted.'

(b) *h-usi* *=d* (K)
3FS-lift:P =VC
'She lifted.'

The forms remain distinct with C-final verb stems, where the 2S verb form takes the 3MS:DO *ṯ* and the ventive *d*, while the 3FS verb form takes the 3MS:DO *iṯ* and the ventive *id* (in most dialects). Compare:

(46) (a) *h-ḳešm-eˆ* *d* (K)
2-enter:P-2Sˆ VC
'You (SG) entered (here).'
(b) *h-eḳešm* *=id* (K)
3FS-enter:P =VC
'She entered (here)'.

14.3.1.4. 2P Imperative Suffix and the Clitics

The imperative plural suffix is *-aṯ* in Ketama, and *-eṯ* in Hmed/Zerqet, e.g.

(47) *kk-aṯ* (K)
kk-eṯ (H/Z)
give:A:IMP-PL
'Give!' (pl.)

In Ketama, the final *ṯ* of the imperative plural suffix undergoes assimilation to the following *ṯ/t* of the third person DO clitic pronouns, and also to the ventive clitic *d*. In Hmed, the imperative plural suffix *ṯ* is separated from the 3FS:DO clitic *ṭ* and the ventive *d* by a schwa, and there is no assimilation. With the 3MS:DO clitic (originally *ṯ*) and the 3P:DO clitic (originally *ṯen*), reinterpretation took place: the assimilated imperative plural forms (with the final *-t* for the 3MS:DO, from *-ṯ+ṯ*, and the final *-tten* for the 3P:DO clitic, from *-ṯ+ṯen*) got reinterpreted as allomorphs of the third person clitics, and the imperative plural suffix *-ṯ* was added subsequently before them, hence *-ṯ=et* (for 3MS:DO) and *-ṯ=etten* (for 3P:DO). Finally, in Zerqet, the imperative plural suffix *-eṯ* is substituted by the suffix *-em* when in combination with the clitics. The table and examples follow.

Imperative plural suffix in combination with the clitics

Variety	IMP:PL sfx	+ 3MS:DO	+3FS:DO	+3P:DO	+Ventive
K	-aṯ	-a(t)ˆt	-a(t)ˆt	-atˆten	-aˆd
H	-eṯ	-ṯ=et	-ṯ=eṭ	-ṯ=etten	-ṯ=ed
Z	-eṯ~-em	-em=ṯ	-em=t	-em=ṯen	-em=d

The imperative plural form 'Give!' in combination with the clitics

Variety	IMP:PL sfx	+ 3MS:DO	+3FS:DO	+3P:DO	+Ventive
K	-aṯ	kk-a(t)ˆt	kk-a(t)ˆt	kk-atˆten	kk-aˆd
H	-eṯ	kk-ṯ=et	kk-ṯ=eṭ	kk-ṯ=etten	kk-ṯ=ed
Z	-eṯ~-em	kk-em=ṯ	kk-em=t	kk-em=ṯen	kk-em=d

14.3.2. PNG Prefixes and Preverbal Clitics

14.3.2.1. 2S/3FS/2P Subject Prefix and Preverbal Clitics

The 2S/3FS/2P subject prefix interacts with the preverbal clitics in a number of ways.

1) 2S/3FS/2P subject prefix and fronted pronominal clitics

In the Aorist, the 2S/3FS/2P verb subject prefix is realized as *t-* following the irrealis *a(ḏ)*. In Ketama, the prefix is also realized as *t-* following the clitics, vs. *ṯ* in Hmed and Zerqet:

(48) *š-a* *ˆs=* *t-ekki-m* (K)
š-a *ˆs=* *ṯ-ekk-em* (H/Z)
FT-NR ˆ3S:IO = 2-give:A-2P
'You (PL) will give to him/her.'

Following the fronted 3P:DO clitic (K/H *hen*, Z *ṯen*), the prefix is spirantized in Hmed, and not spirantized in Ketama and Zerqet:

(49) *š-a* *hen=* *t-af-eḏ* (K)
š-a *hen=* *ṯ-af-eḏ* (H)
š-a *ṯen=* *t-af-eḏ* (Z)
FT-NR 3P:DO = 2-find:A-2S
'You (SG) will find them.'

In Perfective and Imperfective verb forms, the 2S/3FS/2P subject prefix is realized as *h-* in Ketama. Following a fronted clitic (except for the ventive), the verb prefix is realized as *t-* in Ketama. In Hmed and Zerqet, the prefix is realized as *ṯ-*, whether preceded by a clitic or not:

(50) *u* *ˆs=* *t-ekka* *šay* (K)
u *ˆs=* *ṯ-ekka* *š* (H/Z)
NEG ˆ3S:IO = 3FS-give:P NEG
'She did not give to him/her.'
(51) *u* *ḵ=* *t-eẓṛa* *šay* (K)
u *ḵ=* *ṯ-eẓṛa* *š* (Z)
NEG 2MS:DO = 3FS-see:P NEG
'She did not see you (MS).'

2) 2S/3FS/2P subject prefix and the fronted 3S:DO clitics

The distinction between the fronted 3MS and 3FS:DO (and 1S:DO/IO in Beni Hmed) depends on the verb form (subject PNG prefix), context (AOR vs. PERF/IPF), and the dialect. There is assimilation of the 2S/3FS/2P subject prefix and the fronted third person singular DO clitics (MS *ṯ*, FS *t*) in Ketama and Zerqet. In the Aorist (following the irrealis *a(ḏ)*), the form of the verb with a fronted 3MS or 3FS:DO clitic and without a clitic are homophonous in these varieties. In Hmed, the fronted third person singular DO clitics (MS *t*, FS *ṯ*) remain distinguished.

The 2S/3FS/2P prefix and fronted 3S:DO clitics in the Aorist after *(š-)aˆ(ḏ)*

Variety	with 3MS:DO	with 3FS:DO
K/Z	*(š-)aˆt-*	*(š-)aˆt-*
H	*(š-)aˆt ṯ- ~ (š)aˆtˆt-*	*(š-)a ṯ ṯ- ~ (š)a ṯˆṯ-*

The following table illustrates the 3FS verb form *š-a t-ẓeṛ* 'she will see' with the clitics.

The 3FS verb form *š-a t-ẓeṛ* 'she will see' with fronted 3S:DO clitics

Variety	with 3MS:DO	with 3FS:DO
K/Z	*š-aˆt-ẓeṛ*	*š-aˆt-ẓeṛ*
H	*š-aˆt=ṯ-ẓeṛ ~ šaˆtˆt-ẓeṛ*	*š-a ṯ=ṯ-ẓeṛ ~ š-a ṯˆṯ-ẓeṛ*

For comparison, the following table illustrates the 3MS Aorist verb form 'he will see' (Ketama *š-a y-ẓeṛ*, Hmed *š-a ḏ-ẓeṛ*, Zerqet *š-aḏ i-ẓeṛ*) with the clitics. In this case, the 3S:DO clitics are distinguished in Ketama and Zerqet.

The 3MS verb form 'he will see' with fronted 3S:DO clitics

Variety	with 3MS:DO	with 3FS:DO
K	*š-a h=i-ẓeṛ*	*š-a t=i-ẓeṛ*
Z	*š-a ṯ=i-ẓeṛ*	*š-a t=i-ẓeṛ*
H	*š-aˆt=i-ẓeṛ*	*š-a ṯ=i-ẓeṛ*

Coming back to the 2S/3FS/2P subject prefix: the following forms (examples *a* and *b*) are homophonous in Ketama and Zerqet. In Hmed, the fronted 3MS:DO clitic is audible (example *c*), and distinguished from the 3FS:DO *ṯ* (example *d*). Following the fronted clitics, the subject prefix can be assimilated (in this case, it is long), or can remain *ṯ-* in Hmed:

(52) (a) *š-a ˆt-af-eḏ* (K/H/Z)
FT-NR ˆ2-find:A-2S
'You (SG) will find.'

(b) *š-a t ˆaf-eḏ* (K/Z)
FT-NR 3S:DO ˆ(2:)find:A-2S
'You will find it (M/F)/him/her.'

(c) *š-a ˆt ṯ-af-eḏ* (H)~
š-a ˆt ˆt-af-eḏ (H)
FT-NR ˆ3MS:DO ˆ2-find:A-2S
'You will find it (M)/him.'

(d) *š-a* *ṭ=* *ṯ-af-eḏ* (H) ~
š-a *ṭˆ* *ṭ-af-eḏ* (H)
FT-NR 3FS:DO 2-find:A-2S
'You will find it (F)/her.'

In Perfective and Imperfective, the forms with the fronted 3S:DO clitics and without the clitics are distinguished in all varieties (albeit in a different way), while Hmed also distinguishes the gender of the clitic. In Ketama and Zerqet, the presence of the fronted 3S:DO clitic is visible in the non-spirantized realization of *t-* (otherwise, the 2S/3FS/2P subject prefix is *ṯ-* in Zerqet, and *h-* in Ketama).

The 2S/3FS/2P prefix and fronted 3S:DO clitics in the PERF/IPF

Variety	with 3MS:DO	with 3FS:DO
K/Z	*t*	*t*
H	*t ṯ* ~ *tˆt*	*ṭ ṯ* ~ *ṭˆṭ*

The following table illustrates the 3FS Perfective Negative verb form 'she did not see' with the fronted clitics.

The 3FS verb form 'she did not see' with fronted 3S:DO clitics

Variety	with 3MS:DO	with 3FS:DO
K/Z	*u tˆeẓra š*	*u tˆeẓra š*
H	*u t=ṯ-eẓra š* ~ *u tˆt-eẓra š*	*u ṭ=ṯ-eẓra š* ~ *u ṭˆṭ-eẓra š*

For comparison, the following table illustrates the 3MS Perfective Negative verb form 'he did not see' (Ketama *u y-eẓra š*, Hmed *u ḏ-eẓra š*, Zerqet *uḏ i-ẓra š*) with the fronted clitics. The 3S:DO clitics are distinguished in Ketama and Zerqet.

The 3MS verb form 'he did not see' with fronted 3S:DO clitics

Variety	with 3MS:DO	with 3FS:DO
K	*u h=i-ẓra š*	*u t=i-ẓra š*
Z	*u ṯ=i-ẓra š*	*u t=i-ẓra š*
H	*u t=i-ẓra š*	*u ṭ=i-ẓra š*

Additional examples with the 2S subject prefix follow:

(53) (a) *u* *ṯ-ufi-ḏ* *š* (H/Z)
u *h-ufi-ḏ* *š* (K)
NEG 2-find:P-2S NEG
'You (SG) did not find.'

(b) *u* *tˆ* *ufi-ḏ* *š* (K/Z)
NEG 3S:DO ˆ(2)find:P-2S NEG
'You (SG) did not find it (M/F).'

(c) *u* *t* *ṯ-ufi-ḏ* *š* (H)
u *t* *ˆt-ufi-ḏ* *š* (H)
NEG 3MS:DO ˆ2-find:P-2S NEG
'You (SG) did not find it (M).'

(d) *u* *ṭ* *ṯ-ufi-ḏ* *š* (H)
u *ṭˆ* *ṭ-ufi-ḏ* *š* (H)
NEG 3FS:DO 2-find:P-2S NEG
'You (SG) did not find it (F).'

3) 2S/3FS/2P subject prefix and fronted 1S:DO/IO clitic

The preverbal 1S (DO = IO) clitic has different forms in Ketama depending on the context and on the dialect: *yṯ, yt, t*.[766] It could be said that the form with the final *-t/ṯ* is found only with 3MS and 3P verb forms, while the original *y* is found with the remaining persons. Alternatively, it could be said that the form of the 1S:DO remains the same, while the 2S/3FS/2P verb prefix is assimilated and realized as "zero" after the clitic. We choose the first approach, as it also parallels the forms found in Hmed and Zerqet:

(54) *š-a* *y=* *t-ẓeṛ* (K) ~
š-a *y=* *ṯ-ẓeṛ* (H/Z)
FT-NR 1S:DO 3FS-see:A
'She will see me.'

When 1S clitic is realized as *t* (possible in Beni Hmed dialect, merging with 3S:DO), there is no opposition between the variants with and without a fronted clitic when followed by the 2S/3FS/2P prefix *t-* in the Aorist, e.g.

[766] The 1S clitic *yṯ* is found most frequently in Beni Aisi; *yt* in Beni Hmed, Lmekhzen, and Sahel; *t* in Beni Hmed (alongside *yt*). In Beni Hmed, when the preverbal 1S is realized as *t*, it is homophonous with the 3FS:DO (and 3MS:DO in some contexts). The unusual form of the fronted 1S clitic pronoun in Ketama probably originated as a reanalysis of the fronted 1S *y* followed by the "problematic PNG prefix" *t* (2S/3FS/2P) and/or by the 3S:DO clitic *ṭ/t* (cf. Section 5.3).

(55) (a) *š-a* *t* *ˆẓeṛ*
FT-NR 1S:DO/3S:DO (3FS:)see:A
'She will see me/him/her.'
(b) *š-a* *t-ẓeṛ* (K)
FT-NR 3FS-see:A
'She will see.'

4) 2S/3FS/2P subject prefix and the fronted ventive

There is a progressive assimilation of the 2S/3FS/2P verb subject prefix *t̲-* to the fronted ventive clitic *d* (across varieties), e.g.[767]

(56) *š-a* *d* *ˆek̲šm-ed̲* (K/H/Z)
FT-NR VC ˆ(2:)enter:A-2S
'You will enter (here.)'
(57) *u* *d* *ˆek̲šem* *š(ay)* (K/H/Z)
NEG VC ˆ(3FS:)enter:P NEG
'She did not enter (here).'

14.3.2.2. 3MS subject prefix and preverbal clitics

When a 3MS verb form follows a fronted clitic, within Ketama, there is a difference in pronunciation depending on the dialect: the prefix *i-* is more frequent in Beni Aisi and Lmekhzen, while the forms with prefix *y-* are more frequent in Sahel. Both forms are encountered in Beni Hmed. In other Senhaja varieties (Hmed, Zerqet), the forms with *i-* as 3MS subject prefix are more frequent, although the forms with *y-* are also accepted in Hmed. For example:

(58) (a) *š-a* *h=* *i-k* (K: Beni Aisi, Lmekhzen, Beni Hmed)
(b) *š-a* *h=* *y-ek* (K: Sahel, Beni Hmed)
(c) *š-a* *t=* *i-k* (H)
(d) *š-a* *t̲=* *i-k* (Z)
FT-NR 3MS:DO= 3MS-give:A
'He will give it (M).'

Compare the following examples with the fronted IO:

[767] In other cases, as e.g. with the postverbal ventive, assimilation is usually regressive (e.g. *t̲+d> d*). The same is found in Ghomara (Mourigh 2015: 51-52), and in many other Berber languages.

(59) (a) *š-a* *ˆḵ=* *i-k* (K: Beni Aisi, Lmekhzen, Beni Hmed/H/Z)
(b) *š-a* *ˆḵ=* *y-ek* (K: Sahel, Beni Hmed)
FT-NR ˆ2MS:IO= 3MS-give:A
'He will give to you (MS).'

14.4. Conclusions

There are various assimilations and allomorphy in the verb complex. Different morphemes interact: the verb stem and the prefixes; clitics and affixes; particles and PNG affixes and clitics. The assimilation is usually regressive, except for the fronted ventive *d*, that causes the following *t* (e.g. 2S/3FS/2P verb subject marker) to assimilate.

The *t* of the subject prefix, Imperfective, or passive, assimilates to the following *d* (or *ḍ*) of the verb stem in Ketama and Zerqet, but not in Hmed. In Imperative Plural forms, the Ketama suffix *-aṯ* assimilates to the following clitics (DO, ventive), while in Zerqet, the suffix *-eṯ* is substituted by *-em* in this case.

Pronominal clitics can assimilate in voice to the following ventive *d*, e.g. 3S:IO *as*+*d* > *az*=*d*, 2MS *aḵ*+*d* > *aḡ*=*d*, including the long-distance assimilation in Zerqet of 3P:IO *asen*+*d* > *azen*=*d*. There are specific forms of third person DO clitics and the ventive (which is usually realized as *id* following third person pronouns). In the preverbal position, the 3MS and 3FS:DO can merge. In Zerqet, assimilation in voice takes place only in the preverbal position.

In Ketama, the final *-ġ* of 1S subject marker and 1P:IO clitic is restored when there is a following clitic (e.g. ventive) or particle (e.g. the negator *š*), e.g. *ḵešm-a* 'I entered' > *ḵešma-ġ*=*d* 'I entered here', *u ḵešma-ġ š* 'I did not enter'. If there is a following DO clitic, the *ġ* is devoiced and realized as *ḥ*. Similarly, the 1P clitic *na* (DO/IO) is realized as *naġ* if there is a following clitic or particle. When 1P:IO *na(ġ)* is followed by a DO clitic, there is a devoicing: *naġ* > *naḥ* before 3S:DO *ṯ/t* and 3P *ṯen*. This is also found in Zerqet, but not in Hmed.

When a V-final verb stem is followed by a V-initial clitic, either the vowels coalesce, or a semivowel is inserted, e.g. *i-nna*+*as* (3MS-say:P+3S:IO) > *innas* (K/H/Z), *innayas* (K/Z, but not Hmed) 'he told him'. When a V-initial clitic follows a subject suffix with a schwa (e.g. 3P *-en*), the schwa is realized as *a* in Ketama, while the word is resyllabified in Hmed/Zerqet.

15. Summary and Conclusions

1. Introduction

This thesis describes several distinct but related varieties of Berber spoken in Northwestern Morocco (Western Rif). We use the term 'Senhaja' as a cover term to refer to all these varieties. There are, in total, ten distinct Berber varieties spoken in this region, corresponding to ten 'tribes' (to use a traditional term) that make part of the larger Senhaja macro-tribe. The thesis is based on the fieldwork data collected between 2013 and 2021 and issuing from seven Senhaja varieties spoken in 35 villages. These varieties are (from West to East): Ketama (abbreviated as [K] below), Seddat [S], Taghzut [T], Hmed [H], Bunsar [B], Zerqet [Z], and Mezduy [M]. We adopt a polylectal approach, focusing on the differences and the common features between the studied varieties. Three varieties were chosen as representative of the regions where they are spoken – Ketama (Western Senhaja), Hmed (Central Senhaja), and Zerqet (Eastern Senhaja) – in order to cover Senhaja as a whole most fully and accurately. The Mezduy variety was not chosen, as it is the border variety that is most influenced be the Tarifiyt Berber spoken to its East. The studied varieties are important for the understanding of the linguistic landscape and history of the region, and the linguistic variation therein.

The thesis covers the major domains of the language, such as phonology, morphology, and morphosyntax. Senhaja has been heavily influenced by Arabic, as is evident in multiple lexical, as well as morphological and syntactic borrowings. Across Senhaja, suppletive borrowing is widespread, so that native verbs correspond to suppletive verbal nouns, causatives, passives, and participles. While lexical borrowing is found across Senhaja, the grammatical borrowing is especially frequent in Western and Central Senhaja. Here, we find Arabic patterns in verb derivation (e.g. derivation of causatives) and in derivation of participles on the basis of native Berber verbs. Arabic apophony is also borrowed in derivation of diminutives from the native Berber nouns.

There are some important similarities between the Senhaja and the Ghomara Berber language spoken to its West (Mourigh 2015), but also substantial differences. The similarities can be explained both by the geographical proximity and probably by the common origin. Similarly, there are both similarities and differences with the Tarifiyt Berber spoken to the East of Senhaja (Lafkioui 2007a, Kossmann 2017a). Some isoglosses distinguish Senhaja from Tarifiyt. Despite the geographical proximity, the varieties are not necessarily related genealogically.

The studied varieties are interesting from various points of view. For example, there is a separate morphological class of adjectives, which is not common among Berber languages. In Senhaja, adjectives form a distinct class. Some Senhaja varieties allow for adjectives to be conjugated, which makes them similar to verbs, albeit lacking the aspectual distinctions. Another interesting morphological category is constituted by the impersonal verbs. Unlike adjectives and like verbs, they can have aspectual distinctions and have a verbal origin. Different from the regular verbs, they do not have obligatory PNG subject markers, or use a petrified 3MS subject prefix. Very often, such words take IO pronominal clitics. Pseudo-verbs is another category of words that can take verbal pronominal clitics (usually, DO clitics), while lacking all other verbal characteristics (such as PNG subject marking or aspectual distinctions). The pronominal clitics found with pseudo-verbs have the same form as pronominal clitics found with verbs, albeit they do not undergo clitic fronting under special syntactic conditions, which normally trigger clitic fronting with regular verbs.

In this thesis, it was chosen to pay special attention to the verb and the verbal complex, which is why three separate chapters are devoted to it in the morphology part. Chapter 3 discusses the major characteristics of the verb, the verb derivation, and subject marking. Chapter 4 discusses the formation of the verbal stems that express the mood, aspect, and also negation in parts of Senhaja. Chapter 5 is devoted to the verbal clitics and particles, markers and auxiliaries of the past, future, and relevance of the utterance for the present. A separate topic is the behavior of the verbal clitics: the IO, the DO, and the ventive deictic clitic. This behavior is studied in the final chapters (Chapters 12 and 13), while the morphophonology of the verbal complex is studied in Chapter 14.

2. Phonology

The transcription system used in this thesis is the one that is commonly found in literature on Berber. Long consonants are doubled in the transcription, e.g. *bb* [bː]. Pharyngealized (traditionally called “emphatic”) consonants are written with a dot underneath, e.g. *ṭ* [tˤ]. Underscore indicates that the consonant is spirantized, e.g. *t̲* [θ], *d̲* [ð], *ḍ̲* [ðˤ]. The IPA [ʃ] is written as *š*; [ʒ] as *ž*; [t͡s] as *ṯ*; [t͡ʃ] as *č*; [d͡ʒ] as *ǧ*; [ħ] as *ḥ*, [x] as *ḫ*, [ɣ] as *ġ*; [ʔ] (the glottal stop) as <’>, [ʕ] as *ε*, and [j] as *y*. Labialization is written with a superscript [ʷ], e.g. k^w. There are three plain (peripheral) vowels (*a, i, u*) and a central vowel, schwa [ə], written here as *e*. The symbol ˆ indicates vowel elision, truncation, and assimilation. The Senhaja consonantal system has opposition of voice, length, and pharyngealization. The Senhaja varieties are generally spirantizing, albeit in many contexts, plosives and their

spirantized counterparts are in free variation. In some cases, plosive or spirantized pronunciation is obligatory. Plosives might have different sources, such as: 1) borrowing, 2) simplification of the original geminates, 3) depharyngealization of emphatics. In some contexts, spirantization may be blocked (e.g. after *n*). While all Senhaja varieties spirantize, the phonemes *b̲* and *ḡ* are not found in all varieties, and are marginal in Senhaja. Most Senhaja varieties lave labialized velars. Labialized phonemes are not found in Ketama and Taghzut, although some traces of lost labialization are still discernible in Ketama.

In Senhaja varieties, **l* and **ll* underwent different changes. In most varieties (K/S/H, parts of Bunsar), **l* > *y*. In Taghzut, **l* > *ž*. In Mezduy, **l* > *r* (as in Tarifiyt). In Zerqet, **l* has been preserved. Long **ll* > *ǧǧ* in most Senhaja varieties (S/B/Z/M). It corresponds to *ll* or *žž* in Taghzut. In Ketama and Hmed, **ll* is preserved.

In the vocalic system, the phonetic status of the central vowel schwa is ambiguous. Schwa is not found in open syllables, and in most cases, serves as a syllable-forming device. However, some occurrences of schwa are not predictable, and in such words, it must be considered inherent. In the final syllable before back consonants, the differences between the schwa and *a* are neutralized. The high vowels *u* and *i* interchange with the semivowels *w* and *y* in some contexts. The sequences of two vowels are avoided by means of vowel elision, insertion of a semivowel (*Hiatustilger*), or turning a vowel into a semivowel.

The following table summarizing the isoglosses in phonetics/phonology within Senhaja (K, H, Z). Comparisons with Ghomara (Ghm) and Tarifiyt (Rif) are provided.

Isogloss	**Ketama**	**Hmed**	**Zerqet**	**Notes**
Labialized velars	-	+	+	Ghm: yes. No short velars in Rif.
**l – *ll*	*y – ll*	*y – ll*	*l – ǧǧ*	Taghzut *ž – žž*, Seddat/Bunsar *y – ǧǧ*. Ghm *l – ll*, Mezduy and Rif *r – ǧǧ*
b > *b̲*	-	+	dialectal	*b* > *b̲* also in Taghzut, Ghm, Rif
g > *ḡ*	-	-	+	*g* > *ḡ* also in Seddat, Ghm, Rif
g>*ḡ*>*y*(>Ø) (in some cases)	-	+	+	Not in Rif
t>*t̲*>*h*(>Ø) (in some cases)	+	rare	-	Also Taghzut (dialectal), Ghm. Not in Rif
existence of *ṭ*	-	+	-	Also in Taghzut, Seddat (dialectal). Not in Ghm/Rif
s – tts, *z – ddz*	-	-	+	Not in Ghm/Rif
š – čč	-	+	+	Also in Seddat, Taghzut, Ghm. Not in Rif.

3. Verb: Derivation and PNG

3.1. Verb Derivation

There are several derivations in Senhaja that express modifications in voice. There are two valency-increasing mechanisms that derive causatives: derivation with the prefix *s(s)-* (common among Berber), and the gemination of C2 (the second radical of the verb root, the Arabic stem II), usually found with borrowed verbs, but in some cases, applied to the native Berber verbs (pattern borrowing). For native verbs, stem II causatives are often suppletive. There are several valency-decreasing mechanisms that derive passives and, sometimes, middles or medio-passives. Passives are derived with prefixes *t(t)-* and *n(n)-* (shared with Arabic) across Senhaja, while there are also dialect-specific prefixes with a semivowel: *ttya-* (K), *ṭṭuya-* (H), and *ttwa-* (Z). These are Berber prefixes, but they can be found with borrowed Arabic verbs. The passive prefix *m(m)-* is very rare, and the prefix *n(n)* cannot be seen as its allomorph (different from other Berber varieties). It is possible that *n-* became widespread in Senhaja under the influence from Arabic, while not necessarily being borrowed. As with causatives, some passives are suppletive. While derivational prefixes are found across the Berber world, Senhaja is special in its widespread use of borrowed Arabic stem II causatives (often suppletive to the Berber verbs) and suppletive passives. This feature is also found in Ghomara (Mourigh 2015). Some verbs allow for multiple causative or passive counterparts. The combination of different derivations is possible to a certain extent. Besides the derivations mentioned above, Senhaja has borrowed a large number of Arabic derived verbs. In some cases, Arabic patterns are applied to the native Berber verbs – most notably, stem II, formed by C2 gemination, but also stem V, that combines stem II with the *t*-prefix. With Arabic borrowed verbs, some hybrid forms are found that do not exist in Arabic, such as the combination of the *t*-prefix with stem I (the underived base), or the *n*-prefix with stem II (with the geminated C2).

3.2. PNG (Person, Number, Gender) Subject Marking

Verbal subject PNG markers express the person, number, and gender (PNG) of the subject. In most varieties with the exception of Easternmost Senhaja (Z/M), the gender is marked only in the third person singular. Zerqet and Mezduy allow for gender marking also in 2P and 3P. The affixes appear both before (prefixes) and after (suffixes) the stem. There are different sets of subject affixes: 1) the normal set; 2) the imperative; 3) the relative form (traditionally called the “Berber participle”).

Some PNG markers show variation as a result of phonological changes and reanalysis. The marking is slightly different in the Aorist following the irrealis particle *a(ḏ)* vs. in the Perfective and Imperfective. The variable markers in Senhaja include: 1S suffix (originally **eġ*), 2S/3FS/2P prefix (originally *t-*), and 3MS prefix (originally *i/y-*). The 1S subject suffix has developed from *-eġ* into *-aġ* in most varieties, and to *-a* in Ketama. With V-final verbs, the 1S suffix is *-ġ*, e.g. (K) *ḵešm-a* 'I entered' vs. *ddi-ġ* 'I went'.

There is one prefix for 2S, 3FS, and 2P: the prefix *ṯ-*. In Ketama, it developed into *a-/h-/ah-*, e.g. *ṯ-eḵrez* (most Snh.) vs. *a(h)-ḵrez~h-eḵrez* (K) 'she plowed'. In the Aorist following the irrealis marker *a(ḏ)*, the prefix is realized as *t-* as a result of assimilation (*aḏ+ṯ > atˆt > aˆt*), e.g. *š-a ˆt-eḵrez* (pan-Snh.) 'she will plow'.

The 3MS prefix is originally *i-/y-*, and this realization is still found in some contexts, e.g. *i-ḵrez* 'he plowed'. In parts of Senhaja (T/S/H), in the Aorist forms following the irrealis *aḏ*, there is no *i-*, e.g. *aḏeḵrez* 'he will plow'. In such cases, the prefix can be analyzed as zero (*aḏ eḵrez*), or the final *ḏ* of the irrealis particle can be considered as the new subject prefix (*a ḏ-eḵrez*). Compare Ketama *a y-eḵrez*, Zerqet *aḏ i-ḵrez* 'id.'. Bunsar has *aḏ i-ḵrez ~ a ḵrez*.

In Perfective Negative, *ḏ* is found in parts of Senhaja (T/S/H), generalized from the Aorist, e.g. *uḏeḵrez š* 'he did not plow'. Again, the 3MS marker can be analyzed as zero (*uḏ eḵrez š*), or as *ḏ-* (*u ḏ-eḵrez š*). Ketama has *u y-eḵrez š*, Zerqet *uḏ i-ḵrez š*, and Bunsar *uḏ i-ḵrez š ~ u ḵrez š* 'id.'. A zero marker is also found in parts of Seddat with the negator *ur*: *ur eḵrez š* 'id.'.

When a verb starts in a vowel, 3MS prefix is *i-/y-* across Senhaja in unmarked contexts (e.g. Perfective, affirmative: *y-uri ~ i-wri* 'he wrote'), and in the Aorist following the preverb *aḏ*: *aḏ y-ari* (most Snh.), Ketama *a y-ari* 'he will write'. In Perfective Negative, 3MS is *i-/y-* in most varieties: *uḏ i-wri š (~uḏ y-uri š)* (H/B/Z), *u y-uri š ~ i-wri š* (K) 'he did not write'. In Taghzut, *y-* is optional: *uḏ (y-)uri š*. Seddat (dialectally) has *u ḏ-uri š ~ ur uri š*.

The Imperative singular has no PNG affixes. There are two plural suffixes which form an isogloss: *-aṯ* in Western Senhaja (K/T/S), *-ṯ* in Eastern Senhaja (H/B/Z/M). Zerqet uses IMP:PL *-em* before the ventive clitic *d* (*-em=d*).

The Prohibitive, when used with the Berber negator *u* (or variants) has the same marking as the Imperative. The varieties differ in the choice of the preverbal negator: most varieties *u* (T/B/S), Ketama *i*, Seddat *u(r)*, Hmed *(u)la*. In some varieties, there exists an alternative Prohibitive form (a calque on Arabic) with the borrowed preverbal negator *ma*. It takes the second person PNG affixes, and uses the Aorist stem (following the irrealis *aḏ*). The injunctive uses the 1P prefix *n-*, optionally combined with the IMP:PL suffix *-aṯ/-eṯ*, always used with the irrealis particle *a*.

The relative form (also known as the “Berber participle”) is a verbal form used in subject relative constructions. The shape of the relative form is *i*-X-*n*, invariable for number and gender, e.g. *i-ḵerz-en* ‘who plowed’. Optionally, Eastern Senhaja (Z/M) uses a FP form: *i*-X-*nt*.

Impersonal verbs can be used without PNG markers, or PNG markers may be optional or frozen. They can take pronominal IO clitics, which makes them similar to pseudo-verbs, e.g. *(i-)ḥeṣṣ=ay* ((3MS-)need=1S:IO ‘I need’ (lit. ‘it is needed to me’).

4. MAN (Mood, Aspect, Negation) Verb Stems

In Berber linguistics, it is customary to speak of MAN (Mood, Aspect, Negation) rather than TAM (Tense, Aspect, Mood) distinctions in the verb stems. Most Senhaja varieties distinguish three verbal stems: Aorist, Perfective, and Imperfective, without the negative stems. Mezduy and the Wersan dialect of Zerqet preserve two negative stems: the Perfective Negative and the Imperfective Negative. That is, in most Senhaja varieties, only the mood and aspect, but not the negation, are distinguished in the verb form (without the negative particles), so we can speak of MA(N) verbal stems, where negation is marked only in parts of Senhaja. Some stems can be homonymous. The Aorist, or unmarked stem, when it occurs without a particle, is used for the imperative or as a consecutive (narrative) form. More commonly, it is preceded by the irrealis *a(ḏ)* or the future *(ma)š-a(ḏ)*. In this case, it expresses a non-realized event (irrealis, future, possibility, wish, subjunctive, etc.). The Perfective has different interpretations depending on the verb: a dynamic event in the past, or a stative (including resultative) event. The Imperfective is used for the progressive, simultaneous, habitual, iterative, durative, etc. It can also express inchoative with verbs describing states/quality.

In Senhaja, many verbs do not formally distinguish between the Aorist and the Perfective (AOR=PERF). The Imperfective is usually distinguished. The formation of MA(N) stems is related to the formal characteristics of the verb. For example, most CCC verbs do not formally distinguish between the Aorist and the Perfective.

The Aorist. There are variations within the Aorist paradigms. In Zerqet, some verbs have the final *-i/a* alternation (*i-* appears in 1S and 2S, and *-a* in other persons), corresponding to the invariable *-i* in the rest of Senhaja. In Ketama, the *i/a* alternation in the Aorist is limited to the passive verbs derived with the prefixes *t-*, *n-*, or *ttya-*.

The Perfective. The Perfective is often formed by the following mechanisms:
1) the initial vowel change, e.g. *a-* > *u-*. This is found in both underived and derived verbs (following the derivational prefixes). The initial *u* after the causative *s-* can change to *a* in K/H, but remains unchanged in Zerqet.
2) the medial vowel change. This is found in Ketama/Hmed, but not in Zerqet.

3) the final vowel insertion or alternation. In this case, the Perfective has *-i/a* alternation (cf. Aorist in *-i/a* in Zerqet). Verbs that change the final *-u* to the final *-i/a* in the Perfective is an isogloss that distinguishes Senhaja from Tarifiyt. Also, the vocalization in the Perfective of *CC* and *CCV* verbs is the same, while in Tarifiyt, the alternating vowel differs (Kossmann 2017a: 99).

In many types of verbs, AOR = PERF, especially in CCC and CC:C verbs, and in derivations based on these verbs. There are some CC verbs that have AOR = PERF: *ḍer* (S) 'to fall', *ġez* (H) 'to dig', *res* (H) 'to land', and *rez* (H/B/Z) 'to return (trans.)'. The difference between the *CC** (with an alternating vowel) and *CC* (AOR = PERF) verbs is another isogloss that distinguishes Senhaja from Tarifiyt.

The Perfective Negative. The Perfective Negative is preserved in Mezduy and parts of Zerqet (Wersan). It is derived from the Perfective by the vowel change (*a* > *i*) or insertion. Sometimes, *a* remains unchanged. Verbs without a plain vowel insert *i* before the final consonant. Unlike in Tarifiyt, *i* can be inserted in CC:C verbs and in CCCC verbs.

The Imperfective. There are different ways to form the Imperfective: C2 gemination (across Senhaja); C1 gemination combined with *u* insertion (in Central and Eastern Senhaja); by means of the Imperfective prefix *t(t)-*. The prefix is often combined with vocalic changes, such as 1) insertion of a vowel; 2) replacement of the final vowel; 3) addition of a final vowel; 4) insertion/replacement of a vowel and addition of a final vowel. The same verb can have multiple Imperfectives. There are dialectal preferences in the Imperfective formation.

The Imperfective prefix *t(t)-* is realized as *tt* before a vowel in Ketama. In Zerqet, the prefix is always *t*, and in Hmed/Taghzut, it is *ṭ*. The prefix can co-occur with the causative *s-* in Hmed (and sometimes in Zerqet). This must be an innovation. The prefix does not combine (or coalesces) with the common passive prefix *t-* (or the dialect-specific Ketama *ttya-*, Zerqet *ttwa-*) in Ketama and Zerqet. This is different in Hmed and Taghzut. In Hmed, the Imperfective *ṭ-* is combinable with the passive *t-* and *ṭṭuya-*. In Taghzut, the Imperfective *ṭ* is realized as *s* before the passive *ṭ*~*t* and *ṭṭya-*.

Some verbs lack the Imperfective, or the Imperfective can be irregular or suppletive. Exceptionally, AOR = IPF, e.g. in cases when the Imperfective has been reinterpreted as the Aorist, e.g. *ttru* 'cry' (K); *tsyay* 'hear' (B).

The Imperfective Negative. The Imperfective Negative is restricted to a few verbs, and is (partly) preserved only in Mezduy and the Wersan dialect of Zerqet. In cases where it is different, it is derived from the Imperfective by a vowel change: *a* > *i*. There are also examples where *a* of the Imperfective remains unchanged. In most cases (and in all cases when there is no *a* in the Imperfective), the Imperfective Negative is the same as Imperfective.

5. The Verbal Complex

The verbal complex is defined here as the verb together with the verbal clitics and particles. Auxiliaries are also discussed here. Some of the preverbal elements trigger clitic fronting, while others don't.

5.1. Verbal Particles

There are modal and negative particles. There are two modal particles common to Senhaja: the irrealis *a(ḏ)* and the future *(ma)š-a(ḏ)* (which is a combination of *(ma)š* and the irrealis *a(ḏ)*). Both particles signal that the action has not been realized. In Taghzut, alongside *š-a(ḏ)*, the future *lˆa(ḏ)* is sometimes used, which is a combination of *la* and the irrealis *a(ḏ)*.

There are preverbal and postverbal negative particles. The postverbal particles are *š~ši~šay*, usually in free variation. The preverbal particles are: *u* (general), *ma* (used with the Aorist in Hmed, alongside the general *u*, and with prohibitives based on the Aorist), *la~ula* (used with the Imperfective in Taghzut, Hmed, parts of Seddat), *ur* (used with the Perfective in parts of Seddat). The negator *i* is used in Ketama in prohibitives. In specific contexts, one of the two particles can be absent. The negative *u* can be combined with the future *(ma)š-a(ḏ)* in Zerqet. In Hmed, the preverbal negator is optional in this case, while in Ketama, it is absent in the presence of other preverbal elements.

Besides the discontinuous negation, there are other negation strategies. The negator *maši* can be used to negate the entire clause. The negation *u* (+ VERB) + *bu* can be used with an object complement. There are various negative elements that influence the use of the bipartite negation.

5.2. Verbal Clitics

Verbal clitics are syntactic clitics, as they are mobile and can be fronted under certain syntactic conditions. Verbal clitics include: the pronominal clitics of the DO and IO, and the deictic ventive clitic *d*. Although usually found with verbs, pronominal DO clitics can be also found with pseudo-verbs.

DO clitics. The shape of the clitic pronouns depends on the context. The major distinction is between postverbal and preverbal clitics. Within postverbal clitics, there are sub-series depending on the shape of the verb that they follow: clitics of series *a* follow a V-final stem; clitics of series *b* clitics follow a C-final stem, and clitics of series *c* follow a subject suffix. In Senhaja, the series *a* and *c* are identical (*a* = *c*), except for the fact that pronouns in the series *a* are C-initial on the surface. The main difference between series *b* and *a/c* is in the third person.

In preverbal clitics, there is one series. The preverbal clitics differ from the postverbal ones in three major points:

- in parts of Senhaja (K/T/Z), the preverbal 1S clitic has two forms: the regular *y*, or the innovated *yṭ* (K)/*yḍ* (T/Z) used in specific contexts, which is a result of the reanalysis;
- the fronted 1P clitic is *ġen* in most varieties, *hen* in Ketama, vs. postverbal *(a)neġ* (T/S)/*(a)naġ* (most Snh.)/*(a)na* (K);
- the fronted 3P clitic is *hen* in Ketama (as the fronted 1P) and Hmed.

IO Clitics. Morphologically, the IO clitics and pronominal suffixes (discussed below) belong together: the IO clitics consist of *a* + pronominal suffix. Different from the independent and DO clitic pronouns, IO clitics do not distinguish gender in the third person singular. In some Senhaja varieties, the IO and DO pronominal clitics are homophonous, except for the third person. In other varieties, the DO and the IO clitics differ also in other persons. The varieties differ in what distinctions they make.

The Ventive. There is one deictic clitic in Senhaja: the ventive *d*, often denoting direction toward the speaker. The ventive has different allomorphs depending on the context and on the dialect. There is probably a relation between the ventive *d* and the proximal nominal deictics. In most varieties (H/B/Z, most of Ketama), following C-final verb stems, the form of the ventive is *id*. In other varieties (T, S, parts of Ketama), the clitic remains *d* in such contexts.

5.3. Tense/Aspect auxiliaries

Past. Different Senhaja varieties have different markers to make the reference to the past explicit: *ara~ala* (K), *indi* (T), *iža* (Z). In Hmed, the past marker *g* and the verb 'to be' blended in one form, *gelli/a*, which can be optionally conjugated. When used in combination with the verb in the Perfective, the past marker makes the reference to the past explicit or expresses a prior event in the past (the pluperfect).
The past marker is used with the Imperfective to express a continuous or habitual action in the past. The combination of the past marker (+'to be') + future *š-a* + the verb in the Aorist expresses an anterior non-realized event. To make a reference to the past with a non-verbal predicate, in Ketama, the verb 'to be' in the Perfective is used, preceded by the past marker. In Taghzut and Zerqet, following the past marker, the use of 'to be' is optional.

Future. To make the reference to the future, with a verbal predicate, the verb is used in the Aorist with the irrealis particle *aḍ* or the future *(ma)š-a*. With non-verbal predicates, most commonly across Senhaja, the verb 'to be' is used. The construction based on 'to find' has been grammaticalized as a future marker in Hmed. It can take Arabic personal pronouns, although the origin of the construction is Berber. The future auxiliaries can be combined with a verb in the Perfective to express an accomplished event in the future, or with a verb in the Imperfective to express or a continuous action in the future. The same verbs 'to be' or 'to find' in the Imperfective can be used to express the habitual with non-verbal predicates.

The particle *aqa.* The element *(a)qa* is found across Senhaja, and occurs in different forms and meanings depending on the variety. In most varieties, *aqa* can take the second person DO clitics and is used as an attention-seeking device. In Eastern Senhaja (B/Z), *aqa* can be used as a marker of the relevance of the utterance for the present. The pseudo-verb *(a)qa* in Zerqet can take all DO clitics, and is usually found with non-verbal predicates, especially in locative expressions. When combined with the pronominal clitics, there are different bases depending on the person of the clitic. With the third person clitics, there is a distinction between the distal (*aqay*) and proximal (*qay*), while *aq* is a generic, unmarked form.

6. Noun

There exist two major morphological types of nouns in Senhaja. Class I nouns have Berber morphology, while Class II (borrowed) nouns preserve their original morphology and occur with the Arabic definite article *l-*. European loans are usually integrated into Class II. The third, much smaller class consists of nouns that lack affixes (Class III, or non-affix class). Nouns distinguish gender (masculine and feminine), number (singular and plural), and state.

Gender. In Class I nouns, most masculine nouns have a feminine counterpart, denoting either a difference in the natural gender or in size (augmentative vs. diminutive).
Number. Class III nouns often lack a plural counterpart (cf. below). Mass nouns can be either always singular or always plural.
State. Class I nouns distinguish two states related to the syntactic context, traditionally referred to as *Etat Libre* (EL, or 'Free State'), and *Etat d'Annexion* (EA, or 'Annexed State'). The use of states is restricted in Senhaja. The EL is used in most contexts, while the EA occurs after most prepositions and after the numeral 'one'. The change of state is marked by a change in the nominal prefix. Not all nouns mark the state overtly.

Noun phrases can function as predicates. Most Senhaja varieties employ the predicative *d̲* is this case (obligatory in Zerqet, optional in Taghzut and Hmed). In Ketama, there is no predicative *d̲*. The negation of a nominal predicate is usually achieved either by a negated form of the verb 'to be' (especially in Western and Central Senhaja), or by a single negator *maši* (from Arabic), especially in Zerqet. Taghzut also has other means to negate a nominal predicate (e.g. with the invariable *uliš* or by *u šay* used in succession before the predicate).

The Berber-morphology Noun (Class I)

The Berber-morphology nouns maximally consist of a prefix, a stem, and a suffix. The three nominal categories (number, gender, and state) are expressed in the affixes and in the case of number, can sometimes be expressed in the stem. The prefix can express state, number, and gender, while the suffix expresses (again) number and gender. Most masculine singular nouns start in *a-*. Feminine nouns typically have the prefix *t̲-* (absent in Ketama) and the suffix *-t̲* (which can be freely omitted in Hmed). Following the prefix *t̲-*, most feminine nouns have *a*.

There are two basic types of plural formation: external (change of affixes) and apophonic (change of stem). Nouns can have multiple plural forms used within the same dialect. In external plurals, in masculine nouns, if the prefix is *a-* in the singular, it usually changes to *i-* in the plural, and the suffix *-en* is added. Singular nouns starting in *i* keep the vowel in the plural. For feminine nouns, the initial *t̲a-* > *t̲i-*, and the suffix *-in* is added. In the plural, the feminine suffix *t̲* usually disappears.

The Arabic-morphology Noun (Class II)

Class II nouns consist of the Arabic article (*l-* or its assimilated form), the stem, and (for some feminine nouns) the suffix -a, e.g. *lwalid* 'father', *lwalid-a* 'mother'. Not all nouns ending in *-a* are feminine singular. A few Arabic-morphology feminine nouns end in *-et/eṯ*, but this is rare in comparison with other Berber varieties. Arabic-morphology nouns do not distinguish the states. Most nouns distinguish two numbers. There are external plurals and apophonic plurals. The plural in Class II nouns follows the Arabic pattern and is borrowed together with the base noun. A limited set of borrowed Arabic nouns referring to numbers or time have a dual form.

Non-affix Class (Class III)

Class III nouns lack the Berber prefix and the Arabic article. Such nouns do not mark state, and there is no regular gender derivation. Plurals are often lacking, or are suppletive. Alternatively, the plural form belongs to the regular Berber-morphology or

to the Arabic-morphology class. Some (but not all) kinship nouns belong to the non-affix class, e.g. *gma* (K/S/T) ‘brother’ and its suppletive plural *ayṯma* ‘siblings’.

Interaction between Berber and Arabic in nominal morphology

There is interaction between Arabic and Berber in nominal morphology. Some nouns have a collective form with Arabic morphology, while a corresponding Berberized feminine noun refers to a unit. The unit noun can in turn have a feminine plural class I form, e.g. *tteffaḥ* (coll.) ‘apples’, *ṯateffaḥṯ* ‘apple’, *ṯiteffaḥin* ‘apples’ (pl). Some nouns have internal diminutives. In a few cases, the Arabic apophonic pattern is borrowed to derive a diminutive from a Berber native noun. Some nouns are formed on the basis of borrowed Arabic adjectives.

Verbal nouns are often borrowed from Arabic, and can have a suppletive relation to Berber native verbs. Some Berber-morphology verbal nouns derived from the base verb are also found. Some verbs have two corresponding verbal nouns (a native derived one and a borrowed one), resulting in doublets, e.g. *ḵšem* ‘to enter’, *aḵšam* ~ *ddḫul* ‘entering’.

There are some elements that can precede nouns: *ayṯ* (<Berber) ~ *bni* (<Arabic) ‘sons of’; *bu, mul,* and the plural *sḥab* ‘owner(s)/possessor(s) of’. The element *bu* is usually used with body parts, and describes a certain trait.

Nominal Deictic Clitics

Most Senhaja varieties have postnominal clitics with a three-way distinction in exophoric deixis (proximal, medial, and distal). Most varieties have an anaphoric clitic *nna*, while Ketama and Taghzut employ distal clitics as anaphoric. Ketama and Taghzut distinguish number in deictic clitics (as in Ghomara, but different from the rest of Senhaja and Tarifiyt).

7. Adjectives and Participles

In Senhaja, adjectives form a separate morphological class, with distinct markers. There are native Berber and borrowed Arabic adjectives, differing in morphological marking, but fulfilling the same function. Borrowed Arabic participles share some features with adjectives: they can modify the head noun; they distinguish the same number of forms (masculine singular, feminine singular, and plural); Arabic adjectives with external plurals and participles share the same suffixes to mark the gender and number. Only Berber adjectives have morphologically derived relative forms (used in relative clauses).

Adjectives are conjugated in parts of Senhaja, making them quasi-verbs. There are substantial differences across Senhaja in the marking of adjectives. In Ketama and Hmed, adjectives are never conjugated, while in Seddat, lexemes cognate with Berber adjectives are conjugated with the regular PNG affixes. Some varieties (T/B/Z) have both conjugated and non-conjugated Berber adjectives. Conjugation may be carried out by suffixes only (T/B, parts of Z), or can be regular (parts of Zerqet). In Taghzut and Bunsar, Arabic adjectives and participles can also be conjugated. This conjugation is carried out by suffixes only. The suffixal conjugation recalls the stative verbs found in many Berber varieties. However, conjugated adjectives in Senhaja are not verbs, because they lack MA(N) distinctions. Conjugated adjectives can be regarded as an intermediate category between adjectives and verbs.

When adjectives and participles appear on their own, they refer to the present, or no specific time reference is made. The reference to the future and to the past is achieved with the verb 'to be'. When adjectives (or participles) function as predicates, no predicative particle is used (in contrast to the nominal predicate), that shows that they are not a sub-class of nouns, as in some other Berber varieties. There are different strategies to negate an adjectival or participial predicate, e.g. by the negated form of 'to be' or by a single negator *maši* (as with nominal predicates), but also by a bipartite negation. In Zerqet, the strategy depends on whether the adjective is conjugated or not.

8. Pronouns

There are native Berber and borrowed Arabic pronouns, which can both be either independent or bound. Pronominal clitics are part of the verb complex (Chapter 5).

8.1. Berber pronouns

Independent Personal Pronouns. Independent personal pronouns in Senhaja express person, number, and gender. The gender is distinguished in the 2S and 3S across Senhaja, and in 2P and 3P only in Eastern Senhaja (Z/M). Some pronouns have different forms which are either in free variation or reflect dialectal preferences. Some pronouns have a short and a long form. Varieties differ in spirantization of *k (>*$\underline{k}$*)* (2S, 2P), $\underline{t} > h$ (3FS), $t > \underline{t}$ (Hmed, Taghzut in 3MS, 3FS), vowel *u* vs. *e* (1P, 2P).

Pronominal Suffixes with Nouns and Prepositions. Pronominal suffixes are pronouns suffixed to a limited set of kinship nouns and to prepositions. Some kinship terms (Class III) accept pronominal suffixes to express possession, while regular nouns use the Genitive construction with *n* 'of'. In the absence of any suffix, the 1S reference is

understood, e.g. *gma* ‘my brother’ vs. *gma-s* ‘his/her brother’. In singular suffixes, there is no variation in Senhaja. Variations is found in the plural forms. In Mezduy, with plural suffixes, *ṯ* is inserted between the kinship term and the suffix (as in Tarifiyt). In Ketama and Taghzut, plural pronominal suffixes are not used in some dialects.

Pronouns can be suffixed to prepositions. The forms are largely the same as suffixes with kinship nouns, with some differences:

- in 1S, no suffix is used with kinship nouns, vs. suffix *-i* with prepositions;
- Mezduy does not insert *ṯ* between the preposition and the plural suffixes;
- Ketama and Taghzut accept plural suffixes with prepositions.

The Genitive preposition *n(n)-* followed by the pronominal suffixes expresses possession. The 1S form *inu* is irregular.

Pronominal Heads and Demonstratives

When a Noun Phrase is constituted by a pronominal form followed by a determination (e.g. a relative or a possessive phrase), special pronominal forms can be used, called *pronominal heads*. Bare pronominal heads can function as heads of relative phrases in parts of Senhaja (K/T/Z); only Taghzut marks the number. Most demonstratives can be analyzed as pronominal heads with deictic clitics, with a three-way distinction in exophoric deixis and an additional anaphoric demonstrative in most varieties. Ketama and Taghzut employ the distal demonstrative as anaphoric. Most varieties distinguish masculine singular, feminine singular, and common plural forms. Some varieties distinguish a separate FP form. The words for ‘other’ are also based on pronominal heads. Except Mezduy, the same forms can be used on their own (as head nouns) or follow a noun.

8.2. Borrowed Arabic Pronouns

Arabic third person independent pronouns, full or abbreviated, are found in parts of Senhaja (K/T/H) in specific contexts, such as presentatives, following the presentative *ha* ‘here’. With non-third person pronouns, only Berber pronouns are used. Arabic pronominal suffixes are found across Senhaja with some borrowed Arabic elements. They normally cannot be suffixed to words of Berber origin (with one exception). Depending on the lexeme and the variety, the Arabic suffixes can be in free variation with the Berber suffixes. With some elements (e.g. *men ġir-* ‘except’, *ɛemmeṛ* ‘never’), the Arabic 1P forms are preferred above the Berber forms even in those varieties that employ Berber suffixes (Z/M). In Eastern Senhaja, the use of Arabic suffixes is limited to borrowed fixed expressions, such as *mreḥba bi-* ‘welcome’.

The construction *š-aˆtaft* used in Hmed as a marker of future, is Berber in origin, but accepts Arabic suffixes. It is a grammaticalization of the verb *af* ‘to find’.

9. Prepositions

There are simple and complex prepositions. Some prepositions originated from nouns and preserve nominal characteristics. A few Arabic borrowed prepositions can take Arabic pronominal suffixes. This is marginal in Senhaja, and examples are limited to fixed expressions borrowed from Arabic. Prepositions can be divided into groups according to the state of the noun that follows. Most prepositions take the noun in EA, e.g. the Genitive *n* 'of'. Following some prepositions ending in *-g* (T/Z)/*g*^{w} (H), masculine singular nouns have a special form of EA lacking the initial full vowel. This is found in Taghzut, Hmed, and Zerqet: *g* (T/Z)/*g*^{w} (H) 'in': *g eḫyam* (T/Z)/ *g*^{w} *eḫḫam* (H) 'in the house'; the homophonous Dative *g* (Z)/ *g*^{w} (H) 'for'; and the Ablative *zeg* (T/Z)/ *zig*^{w} (H) 'from'. Some prepositions (e.g. *anda* 'like') take the noun in EL, sometimes in free variation with EA, e.g. *bla yaryaz* (H/Z) ~ *bla weryaz* (H/Z) 'without a man'. There are dialectal differences. Following some prepositions, the state of the noun is linked to the gender, as in the case with the Allative *za* 'to' (H/Z): *zaˆ(a)rrar* 'to the threshing floor' (EL, masculine noun) vs. *za ṯḥanut* (H/Z) 'to the shop' (EA, feminine noun).

Many prepositions have two forms, one (usually a shorter one) used before nouns and one (usually a longer one) used with pronominal suffixes, e.g. *s ufus* 'with the hand' (instrumental) > *sgig-es* 'with it' (K). Some prepositions do not take pronominal suffixes, but are followed by independent pronouns, e.g. *anda Muḥemmeḏ* 'like Mohammed', *anda netta* 'like he' (K).

Complex prepositions take the Genitive *n*, and the following noun is in EA. Some prepositions can be combined, e.g. *za ġu ṯḥanuṯ* (H) 'to the shop' (lit. "to at the shop"), *ḥetta zaˆ(a)ḫyam* (Z) 'until the house' (lit. "until to the house").

Prepositions can be combined with the pronominal elements *mmen* (<Arabic, in K/H/parts of Z) or the Berber *mi* (H/Z), *miḏi* (Z) 'what/who' to form prepositional interrogatives. With *mmen*, the prepositions precede the pronoun. With *mi*, the prepositions follow the pronoun in Hmed and Eastern Zerqet, and appear on both sides of the pronoun in Western Zerqet, e.g. *s emmen* (K/H), *miyy-es* (H), *mi-s* (Eastern Z), *s-mi-s* (Western Z) 'with what' (instrumental).

Possession can be expressed with the Genitive *n* 'of' or with *ġur* 'at'. The syntax with *ġur* in possessives is special: if the possessor is lexically expressed, it must be in a topic position (preceding *ġur*), e.g. *Muḥemmeḏ ġur-es ddrari* (Mohammed at-3S children) 'Mohammed has children.'

Prepositional phrases can function as predicates. Prepositional predicates are similar to the nominal predicates in the mechanisms of negation they use, e.g. by means of the negated form of 'to be', or by means of the negator *maši*. Pronominalized

prepositional predicates can be negated in the same way, but can also take the discontinuous negation *u…š*, depending on the preposition and the variety, e.g. *u kiḏ-es š* (H) (NEG with-3S NEG) ‘not with him/her’, *u ġur-es š* (NEG at-3S NEG) ‘(S)he does not have’.

10. Numerals

All Senhaja cardinal numerals except for ‘one’ are borrowed from Arabic. They are the same across Senhaja, with minor differences in pronunciation. Cardinal numerals are followed by the Genitive *n* that links them to the following noun. Nouns that mark the state are in EA. For the number ‘one’, the borrowed numeral coexists with the native one, that can be used in combination with a noun or independently. When preceding a noun, ‘one’ can function as an indefinite marker. It can also precede other numerals in the sense ‘about’, ‘approximately’.

The gender is distinguished across Senhaja when the numeral ‘one’ is used independently. In Ketama and Taghzut, the numeral is optionally marked for gender when it precedes a noun. In other varieties, the prenominal numeral is invariable. The borrowed Arabic numeral ‘one’ can also be optionally marked for gender. When combined with a noun, in Ketama and Taghzut, it follows it. In other varieties, only the Berber numeral ‘one’ can be used with a noun, either preceding or following it.

In some varieties, the numeral ‘one’ can occur on both sides of the noun. In Ketama and Taghzut, the postnominal ‘one’ is of Arabic origin. In Bunsar and Zerqet, the postnominal numeral is Berber. In Ketama and Taghzut, both native and borrowed numerals for ‘one’ can be used independently. When the numeral ‘one’ is nominalized, it can be used in the sense ‘someone’. In this case, it can be preceded by an indefinite marker – the prenominal numeral ‘one’ or the indefinite *ši*.

Ordinal numerals are all borrowed from Arabic. There are two sets: set 1 is used after a noun and distinguishes three forms (MS, FS, PL), and set 2 is used prenominally and does not mark the gender or number. The following class II nouns usually lack the Arabic article *l-* in most varieties, while in Hmed, the Arabic article can be present. In Hmed, set 1 numerals can appear prenominally, and set 2 numerals can appear postnominally.

To express ‘with the (X number) of us/you/them’, Ketama uses the construction *b* (<Ar.) ~ *s* (<Berber) ‘with’ + numeral + *bi-* (<Ar.) ‘with’ + Arabic pronominal suffix. In the rest of Senhaja, the construction is: *s* (<Berber) ‘with’ + *yes/is-* (linking morpheme) + Berber pronominal suffix.

11. Adverbs

In Senhaja, one finds true adverbs (lacking nominal characteristics), but also nouns that can be used adverbially without a preposition (especially in the locative expressions). Adverbs as well as some nouns used adverbially can take deictic clitics, which, however, do not always coincide with the regular postnominal deixis.

The adverbial phrase can function as a predicate. In this function, it can follow or precede the subject. The adverbial predicate is usually negated using the same strategies as a nominal predicate (by the negated form of 'to be' or by means of the negator *maši*). Different from the adjectival or participial predicates, the adverbial predicate usually cannot be negated by the discontinuous *ma...š* or *u...š*, with the exception of *ḏin* (T/H/Z) 'there' that accepts the discontinuous negation *u... š*, yielding *u ḏin š* 'There is no(t)/ There are no(t)'.

12. Verbal Clitic Chain and Clitic Movement

The verbal clitics can appear in a clitic chain, following or preceding the verb, which is why they can be called *verbal satellites*. Clitic mobility distinguishes syntactic (verbal) clitics from prosodic (nominal) clitics. Prepositions with pronominal suffixes and deictic adverbs do not undergo fronting (also known as *attraction*) in Senhaja. Although the preverbal element acts as an attractor, it is not sure if it also serves as a clitic host. In fact, there are arguments to consider the clitics attached to the verb in either position.

Clitics in Senhaja often occur in P2 (Wackernagel) position. However, the P2 position is not clearly defined, as the preverbal position can be occupied by multiple elements. Another problem is that in Eastern Senhaja (Zerqet), in contexts of relativization, the relative marker is not obligatory, and the clitics are still fronted, while clitics cannot be attached to the "zero" host. Different analyses have been proposed to explain the rules of clitic behavior in Berber, e.g. that they must attach to functional rather than to lexical categories, and the Clitic-Host inversion takes place when there is no grammatical element in the preverbal position. These analyses do not explain why clitics can remain postposed in the presence of some functional categories to the left of the verb (e.g. a past marker). Neither do these analyses explain the divergent clitic behavior in Ketama and in some other Berber varieties, such as partial clitic fronting and clitic repetition.

In unmarked contexts (Perfective, affirmative), clitics follow the verb. When they occur together, the sequence is IO + DO + VENT, where any of the members can be absent. In accordance with the Case-Person Constraint, only third person DO clitics

can follow an IO clitic. For non-third person DO pronouns, the IO is expressed by the prepositional phrase. In specific contexts, clitics are found in the preverbal position. Depending on the context and the dialect, clitic fronting can be optional or obligatory. The following contexts (can) cause clitic fronting:

1) Preverbal particles. The irrealis *aḏ* and the future *(ma)š-aḏ* obligatorily attract clitics. The negator *u* (and variants) usually attracts clitics. In parts of Senhaja, clitic fronting is not obligatory with the Imperfective Negative and prohibitive verb forms.

2) Relativization. Clitic fronting takes place in contexts of relativization (including clefts, a subtype of relativization), with an obligatory relative marker *a* in Ketama, and regardless of the presence of the relative marker in Hmed and Zerqet.

3) Content questions. In Ketama, there is one construction: all questions words are followed by the relative marker *a*, and clitic fronting is obligatory. In Hmed, with fronted clitics, the relative marker is optional, and there is no relative marker with postverbal clitics. In Zerqet, there is no relative marker, and clitics can be optionally fronted. Clitic fronting is obligatory in Hmed and Zerqet following the indefinite pronoun *a* that can function as a question word 'what?', 'who?'.

4) Subordination. Clitic fronting can (optionally) take place after some conjunctions, such as *ani* (H/Z), *mani* (K) 'where'; *zg^{w}ami* (H), *zgamis* (Z) 'when', and is obligatory following Ketama *ga* 'when', which might contain the relative marker *a*. Following *matta* (K/Z), *manṭṭa* (H) 'if (hypothetical), clitics are postposed in Ketama, but may be fronted in Hmed/Zerqet. Other clitics do not cause clitic fronting, e.g. the counterfactual 'if' (*ka, (l)uka*, from Arabic *lukan*), *ḥetta* 'until', *waḫḫa* 'although'.

Several Senhaja varieties (T/S/H/B, parts of Ketama) have divergent clitic behavior with Imperfective Negative verb forms. In Taghzut and Hmed, the unusual behavior may be linked to the specialized negator *(u)la* used with the Imperfective. However, in other parts of Senhaja, clitics can be left postposed also with the general negator *u*. The prohibitive, which is based on the Imperfective, also has divergent clitic behavior, possibly by analogy with the Imperfective. In most Senhaja varieties with divergent behavior of clitics in the Imperfective (S/H/B), the clitics are normally either left postposed, or fronted together in a clitic chain. Taghzut variety is different, allowing for various deviations from the usual model. It is also different from Ketama, where the divergent clitic behavior is related to the nature of the clitics rather than to the verb mood/aspect.

13. Clitic Fronting in Ketama

In Ketama, clitic fronting does not follow the usual scheme, where all clitics are fronted together as an uninterrupted clitic chain (IO + DO + VENT). The usual scheme is found when the clitic chain consists of one pronominal clitic and a ventive (i.e. IO + VENT, or DO + VENT). However, when the verb contains two pronominal clitics, typically, only the IO is fronted, while the DO is left postposed, resulting in a partial clitic fronting: IO + VERB + DO. In another construction, the DO is (seemingly) doubled, occurring on both sides of the verb (IO + DO + VERB + DO). However, the fronted DO clitic is an invariable *t*, unmarked for the gender and number, and it merely signals that the real DO is coming in a postverbal position. In such examples, the fronted DO can be analyzed as a dummy DO, or as a disambiguator.

When the DO has the plural form in an IO + DO clitic chain, there are differences depending on the number of the IO pronoun. With a singular IO, we find (depending on the dialect): the partial clitic fronting (IO + VERB + DO), with or without the dummy DO; the DO repetition (IO + DO + t + VERB + DO), or the complete clitic fronting (IO + DO + t + VERB). In the last two scenarios, the dummy DO is obligatory. With plural IO clitics, only the partial clitic fronting is possible (IO + VERB + DO), with or without the DO. When the verb form contains all the three clitics, the most typical scenario is the partial clitic fronting combined with the ventive repetition: IO + VENT + VERB + DO + VENT. Other constructions are also possible (with the ventive on either side of the verb: fronted following the IO, or postposed following the DO). The complete clitic fronting (IO + DO + VENT + VERB) is also possible, but rare. Again, there are dialectal differences: some models are preferred in specific dialects.

Ketama uses a specialized prohibitive *i*, that cannot be followed by a clitic. Instead, the scheme is: *u* + CLITIC(S) + *i* + VERB + NEG *ši*, as also found in Seddat and (as a possibility) in Taghzut (with an optional *i*). This is the only construction where the clitic is separated from the verb, and it is not clear what functions as a clitic host. Clitics in prohibitives follow the same rules as in other verbal forms, with partial clitic fronting and ventive doubling under specified conditions (as described above). In the Lmekhzen dialect, with the third person DO clitics in combination with the ventive, the ventive is fronted, and the DO + VENT is postposed. This construction allows for the distinction in the gender of the DO pronoun, which is otherwise unmarked in the complete fronting construction.

In the Sahel dialect of Ketama, clitics behave like in Taghzut, as they show divergent behavior in Imperfective Negative and prohibitive, albeit the negator used is *u* and not *ula*. The deviations from the usual model are not like in Beni Aisi and Beni Hmed, as

clitics can remain postposed in attraction contexts or the ventive clitic can be repeated even when it is the only clitic, or can be fronted as the only clitic in an interrupted clitic chain, etc. Another possibility is to have divergent behavior of the clitics with 2P verb forms (also outside the Imperfective). Such deviations from the usual model probably have to do with morphophonology.

Outside Senhaja, there are other Berber varieties that show different deviations in clitic behavior. There are certain tendencies, e.g. to front IO and to keep other clitics (DO and ventive) postposed, or to repeat the ventive clitic. Similar deviations as in Ketama are found in Ghomara, but also in Mzab in Algeria and Tamezret in Tunisia. Different factors might have played a role in the development of a new system. In a number of varieties, as in Senhaja, grammaticalization and reanalysis might be responsible for the change in the clitic behavior.

14. Morphophonology of the Verbal Complex

There are various assimilations and allomorphy in the verb complex. Different morphemes interact: the verb stem and the prefixes; clitics and affixes; particles and PNG affixes and clitics. The assimilation is usually regressive, except for the fronted ventive *d*, that causes the following *t* (e.g. 2S/3FS/2P verb subject marker) to assimilate.

The *t* of the subject prefix, Imperfective, or passive, assimilates to the following *d* (or *ḍ*) of the verb stem in Ketama and Zerqet, but not in Hmed. In Imperative Plural forms, the Ketama suffix *-aṯ* assimilates to the following clitics (DO, ventive), while in Zerqet, the suffix *-eṯ* is substituted by *-em* in this case.

Pronominal clitics can assimilate in voice to the following ventive *d*, e.g. 3S:IO *as* + *d* > *az* = *d*, 2MS *aḵ* + *d* > *ag̃* = *d*, including the long-distance assimilation in Zerqet of 3P:IO *asen* + *d* > *azen* = *d*. There are specific forms of third person DO clitics and the ventive (which is usually realized as *id* following third person pronouns). In the preverbal position, the 3MS and 3FS:DO can merge. In Zerqet, assimilation in voice takes place only in the preverbal position.

In Ketama, the final *-ġ* of 1S subject marker and 1P:IO clitic is restored when there is a following clitic (e.g. ventive) or particle (e.g. the negator *š*), e.g. *ḵešm-a* 'I entered' > *ḵešma-ġ* = *d* 'I entered here', *u ḵešma-ġ š* 'I did not enter'. If there is a following DO clitic, the *ġ* is devoiced and realized as *ḫ*. Similarly, the 1P clitic *na* (DO/IO) is realized as *naġ* if there is a following clitic or particle. When 1P:IO *na(ġ)* is followed by a DO clitic, there is a devoicing: *naġ* > *naḫ* before 3S:DO *ṯ/t* and 3P *ṯen*. This is also found in Zerqet, but not in Hmed.

When a V-final verb stem is followed by a V-initial clitic, either the vowels coalesce, or a semivowel is inserted, e.g. *i-nna + as* (3MS-say:P + 3S:IO) > *innas* (K/H/Z), *innayas* (K/Z, but not Hmed) 'he told him'. When a V-initial clitic follows a subject suffix with a schwa (e.g. 3P *-en*), the schwa is realized as *a* in Ketama, while the word is resyllabified in Hmed/Zerqet.

15. Conclusions

This thesis described the major differences and common features found among Senhaja Berber varieties. The major language domains were covered (phonology, morphology, morphosyntax). Because of the large influence from the Arabic, special attention was paid to the contact linguistics phenomena. Borrowing of Arabic patterns have been found in verb derivation (e.g. derivation of causatives) and derivation of participles on the basis of native Berber verbs, and in derivation of diminutives on the basis of native Berber nouns.

Special attention was paid to the verbal complex and to the behavior of the verbal clitics. The final chapters studied the following questions: what clitic combinations are possible in Senhaja? How do clitics behave when they are combined? Is the behavior the same across Senhaja, or are there dialectal differences? What factors influence the behavior of the clitics, and what causes deviations from the usual model of the clitic fronting? For example, does the nature of the clitics matter? Does the aspect/mood of the verb matter? As demonstrated in Chapter 13, in Ketama, clitic fronting follows specific rules, which are not valid in other Senhaja varieties. For example, there is a tendency to split the pronominal clitic chain, and to front only the IO clitic, while the DO clitic is left postposed. When three verbal clitics occur together, there is a tendency to repeat the ventive clitic in both positions (preverbally following the IO, and postverbally following the DO). Such deviations from the usual model have not been found in other Senhaja varieties. At the same time, other deviations from the usual scheme are found in other parts of Senhaja (Taghzut, Hmed, Seddat, Bunsar). Different from Ketama, these deviations are usually related to the verb aspect/mood (Imperfective, prohibitive), rather than to the nature of the clitics.

When answering the question about the rules of the clitic fronting in Ketama, we ultimately seek to answer the question: How special is Ketama within Senhaja and among other Berber varieties? Is the divergent behavior of clitics in Ketama an innovation? What conclusions can be drawn regarding the history of clitic fronting in Berber? The major factors that influence the behavior of the clitics in Senhaja were

established. Some of these factors are shared with other Berber varieties (e.g. difference in the clitic behavior in unmarked contexts, when clitics are postposed, and in marked contexts, when clitics are fronted). Other factors are specific to the varieties studied, such as the nature of the clitics involved (Ketama), or the verb aspect/mood (Taghzut and Hmed). It is argued in this thesis that the main driving forces behind the divergent clitic behavior in Senhaja are: reanalysis, grammaticalization, and the drive to avoid ambiguity.

Ketama is not the only Berber variety with the divergent behavior of the clitics. Ghomara in particular exhibits very similar features. As Ghomara is geographically close, these deviations can be considered a shared innovation. At the same time, something structurally similar is found also in Algeria (Chaouia, Mzab), and Tunisia (Tamezret). The ventive repetition is also shared by a number of Berber languages.

While some details are known about clitic fronting in particular Berber varieties, we still lack knowledge about variation in clitic behavior across Berber, and about the historical development of the clitic fronting. Since clitic fronting is found almost in the entire Berber-speaking world, it must be an archaic feature. In some Berber languages, this feature became lost or underwent modifications. Those modifications differ in different varieties. Some varieties have no clitic fronting, or acquired partial clitic fronting or clitic repetition. The divergent behavior of clitics in Ketama is most likely an innovation. While the system might appear irregular at the first sight, there are some regularities within this divergent system. Other Berber languages exhibit other deviations. Different modifications of the usual system in different varieties can be independent innovations. However, there are some common tendencies (e.g. no clitic fronting; partial clitic fronting; and clitic repetition, especially ventive repetition).

The fact that similar deviations as found in Ketama also exist in Ghomara, might be an indication that this feature is not very recent, considering the fact that there is little contact between Ghomara and Ketama at present. This shared feature might point to the common origin of Ketama and Ghomara. We also cannot exclude the possibility that Ghomara and Ketama Berber speakers were once geographically closer than at present, and might have influenced each other. It remains to be explained why some things tend to innovate, and why certain innovations are preferred above others. Thus, the complete story of clitic behavior in Berber still remains to be written.

Résumé substantiel

1. Introduction

Cette thèse décrit plusieurs variétés distinctes mais apparentées du berbère parlé dans le nord-ouest du Maroc (Rif occidental). Nous utilisons le terme « senhaja » comme terme générique pour désigner toutes ces variétés. Il existe au total dix variétés berbères distinctes parlées dans cette région, correspondant à dix « tribus » (un ensemble de villages qui revendiquent une parenté) faisant partie de la grande région de Senhaja. La thèse se base sur des données de terrain recueillies entre 2013 et 2021, relatives à sept variétés du senhaja parlées dans 35 villages. Ces variétés sont (d'ouest en est) : le ketama [K], le seddat [S], le taghzout [T], le hmed [H], le bounsar [B], le zerqet [Z] et le mezdouy [M]. Nous adoptons une approche polylectale, en nous concentrant sur les différences et les caractéristiques communes entre ces variétés étudiées. Trois variétés ont été choisies comme représentatives des régions où elles sont parlées – le ketama (senhaja occidental), le hmed (senhaja central) et le zerqet (senhaja oriental) – afin de couvrir le senhaja dans son ensemble de la manière la plus complète et la plus précise. La variété mezdouy n'a pas été retenue, car elle est la variété frontalière la plus influencée par le berbère tarifiyt parlé à l'est. Les variétés étudiées sont importantes pour la compréhension du paysage linguistique et de l'histoire de la région, ainsi que pour les variations linguistiques qu'elle connaît.

La thèse couvre les principaux domaines de la langue, tels que la phonologie, la morphologie et la morphosyntaxe. Le senhaja a été fortement influencé par l'arabe, comme témoigné par des multiples emprunts lexicaux, morphologiques et syntaxiques. En senhaja, les emprunts supplétifs sont très répandus, de sorte qu'aux verbes berbères correspondent des noms verbaux, des causatifs, des passifs et des participes supplétifs empruntés. Si les emprunts lexicaux se retrouvent partout en senhaja, les emprunts grammaticaux sont particulièrement fréquents en senhaja occidental et central. L'apophonie qui existe dans la langue arabe est également empruntée dans la dérivation des diminutifs à partir des noms berbères.

Il existe d'importantes similitudes entre le senhaja et le berbère ghomara parlé à l'ouest (Mourigh 2015), même s'il reste quelques différences substantielles. De même, il existe à la fois des similitudes et des différences avec le berbère tarifiyt parlé à l'est de l'aire linguistique senhaja (Lafkioui 2007a, Kossmann 2017a). Certaines isoglosses distinguent le senhaja du tarifiyt. Malgré la proximité géographique, ces variétés ne sont pas forcément liées génétiquement.

Dans cette thèse, il a été choisi d'accorder une attention particulière au verbe et au complexe verbal. C'est pourquoi trois chapitres distincts lui sont consacrés dans la partie morphologie. Le chapitre 3 aborde les principales caractéristiques du verbe, la dérivation verbale et l'accord avec le sujet. Le chapitre 4 traite de la formation des bases verbales qui peuvent marquer le mode, l'aspect, et aussi la négation dans certaines variétés du senhaja. Le chapitre 5 est consacré aux clitiques et aux particules verbales, aux marqueurs et aux auxiliaires du passé, du futur et de la pertinence de l'énoncé pour le présent. Le comportement des clitiques verbaux (l'objet indirect, l'objet direct et le clitique déictique ventif) constitue un problème spécifique, traité à part. Leur comportement est étudié dans les derniers chapitres (12 et 13), tandis que la morphophonologie du complexe verbal est étudiée dans le chapitre 14.

2. Phonologie

Le système de transcription utilisé dans cette thèse est celui que l'on trouve couramment dans la littérature sur le berbère. Les consonnes longues sont doublées dans la transcription, par exemple *bb* [bː]. Les consonnes pharyngalisées (traditionnellement appelées "emphatiques") sont écrites avec un point souscrit, par exemple *ṭ* [tˤ]. Le soulignement indique que la consonne est spirantisée, par exemple *t̲* [θ], *d̲* [ð], *ḍ̲* [ðˤ]. La fricative palato-alvéolaire sourde [ʃ] est notée *š*, [ʒ] – *ž* ; [t͡s] – *ṯ* ; [t͡ʃ] – *č* ; [d̠͡ʒ] – *ǧ* ; [ħ] – *ḥ*, [x] – *ẖ*, [ɣ] – *ġ* ; [ʔ] (l'occlusive glottale) – <'>, [ʕ] – *ε* et [j] – *y*. La labialisation s'écrit avec un exposant [ʷ], par exemple *k*ʷ. Il y a trois voyelles simples (périphériques) (*a, i, u*) et une voyelle centrale, le schwa [ə], notée ici *e*. Le symbole ˆ indique l'élision, la troncation et l'assimilation des voyelles.

Le système consonantique du senhaja présente une opposition de voisement, de longueur et de pharyngalisation. Le senhaja a des spirantes, bien que dans de nombreux contextes, les occlusives et leurs homologues spirantisées soient en variation libre. Dans certains cas, la prononciation de l'occlusif ou de la spirante est obligatoire. Les occlusives peuvent avoir différentes sources, telles que : 1) l'emprunt, 2) la simplification des géminées d'origine, 3) la dépharyngalisation des emphatiques. Dans certains contextes, la spirantisation peut être bloquée (par exemple après *n*). Alors que toutes les variétés du senhaja ont des spirantes, les phonèmes *b̲* et *ḡ* ne se trouvent pas dans toutes les variétés et sont marginaux en senhaja. La plupart des variétés du senhaja ont des vélaires labialisées. Les phonèmes labialisés ne se trouvent pas en ketama et en taghzout, bien que certaines traces de labialisation perdue soient encore perceptibles en ketama.

Dans les variétés senhaja, *l* et son homologue long *ll* ont subi des changements différents. Dans la plupart des variétés (K/S/H, certaines variétés du bounsar), *l* > *y*. En taghzout, *l* > *ž*. En mezdouy, *l* > *r* (comme en tarifiyt). En zerqet, *l* a été conservé. */ll/* long > *ǧǧ* dans la plupart des variétés senhaja (S/B/Z/M). Il correspond à *ll* ou *žž* en taghzout. En ketama et en hmed, *ll* est conservé.

Dans le système vocalique, le statut phonétique de la voyelle centrale schwa est ambigu. Le schwa ne se trouve pas dans les syllabes ouvertes et, dans la plupart des cas, celui-ci sert à former des syllabes. Cependant, certaines occurrences du schwa ne sont pas prévisibles et, dans ces mots, il doit être considéré comme phonémique. Dans la dernière syllabe avant les consonnes d'arrière, les différences entre le schwa et le *a* sont neutralisées. Les voyelles hautes *u* et *i* alternent avec les semi-voyelles *w* et *y* dans certains contextes. Les séquences de deux voyelles sont évitées par l'élision d'une voyelle, l'insertion d'une semi-voyelle (glide) ou la transformation d'une voyelle en semi-voyelle.

3. Verbe : dérivation et indices de personne

3.1. Dérivation verbale

Il existe plusieurs dérivations en senhaja exprimant des changements de voix. Il y a deux mécanismes d'augmentation de la valence par dérivation de causatifs : la dérivation avec le préfixe *s(s)-* (commun en berbère), et la gémination de C2 (la deuxième consonne de la racine du verbe, comme la forme II de l'arabe), que l'on trouve habituellement avec les verbes empruntés, mais qui dans certains cas, s'applique aux verbes berbères (emprunt de modèle). Pour les verbes berbères, les causatifs à C2 géminée sont souvent supplétifs. Il y a plusieurs mécanismes de réduction de valence qui dérivent des passifs et, parfois, des moyens ou médio-passifs. Les passifs sont dérivés au moyen des préfixes *t(t)-* et *n(n)-* (couramment attestés en arabe) à travers le senhaja, alors qu'il y a aussi des préfixes spécifiques à certains dialectes avec une semi-voyelle : *ttya-* (K), *ṭṭuya-* (H), et *ttwa-* (Z). Ce sont des préfixes berbères, mais on les retrouve avec des verbes arabes empruntés.

Le préfixe passif *m(m)-* est très rare, et le préfixe *n(n)* ne peut pas être considéré comme son allomorphe (à la différence de ce qu'on trouve dans d'autres variétés berbères). Il est possible que *n-* se soit répandu en senhaja sous l'influence de l'arabe, sans être nécessairement emprunté. Comme pour les causatifs, certains passifs sont supplétifs. Alors que les préfixes dérivationnels se trouvent dans presque toutes les langues berbères, le senhaja est particulier dans son utilisation extensive de causatifs à C2 géminée empruntés à l'arabe (souvent supplétifs aux verbes berbères) et de passifs supplétifs. Cette caractéristique est également présente en ghomara (Mourigh 2015).

Certains verbes peuvent avoir plusieurs causatifs ou passifs différents. La combinaison de préfixes dérivationnels est possible dans une certaine mesure. Outre les dérivations mentionnées ci-dessus, le senhaja a emprunté un grand nombre de verbes dérivés à l'arabe. Dans certains cas, les modèles de la langue arabe s'appliquent aux verbes berbères — notamment la forme II, formé par gémination de la deuxième consonne, mais aussi la forme V, qui combine le préfixe *t-* avec la forme II. Avec les verbes empruntés à l'arabe, on trouve certaines formes hybrides qui n'existent pas en arabe, comme la combinaison du préfixe *t-* avec la forme I (la base non dérivée), ou le préfixe *n-* avec la forme II (à C2 géminée).

3.2. Les indices de personne

Les indices de personne expriment la personne, le nombre et le genre (PNG) du sujet. Dans la plupart des variétés, à l'exception du senhaja oriental (Z/M), le genre est marqué uniquement à la troisième personne du singulier. Le zerqet et le mezdouy permettent de marquer le genre également aux 2P et 3P. Les affixes peuvent être préfixes ou suffixes. Il existe différents ensembles d'affixes de sujet : 1) l'ensemble normal ; 2) l'impératif ; 3) la forme relative (appelée le « participe berbère »).

Certains indices de personne montrent des variations suite à des changements phonologiques et des réanalyses. Le marquage est légèrement différent à l'aoriste après la particule irréelle *a(d̲)* par rapport au perfectif (= accompli) et à l'imperfectif (inaccompli). Les marqueurs variables en senhaja comprennent : le suffixe 1S (à l'origine *-eġ*), le préfixe 2S/3FS/2P (à l'origine *t-*) et le préfixe 3MS (à l'origine *i/y-*). Le suffixe de sujet 1S est passé de *-eġ* à *-aġ* dans la plupart des variétés et *-a* en ketama. Avec les verbes à finale vocalique, le suffixe 1S est -ġ, par exemple (K) *k̲ešm-a* « je suis entré » y *ddi-ġ* « je suis allé ».

Il existe un seul préfixe pour 2S, 3FS et 2P : le préfixe *t̲-*. En ketama, il a évolué en *a-/h-/ah-*, par exemple *t̲-ek̲rez* (la plupart du Snh.) vs. *a(h)-k̲rez*~*h-ek̲rez* (K) « elle a labouré ». À l'aoriste, le préfixe qui suit le marqueur irréel *a(d̲)*, est réalisé *t-* par assimilation (*ad̲* + *t̲* > *atˆt* > *aˆt*), par exemple *š-aˆt-ek̲rez* (pan-Snh.) « elle labourera ».

Le préfixe 3MS est à l'origine *i-/y-* et cette réalisation se retrouve encore dans certains contextes, par exemple *i-k̲rez* « il a labouré ». Dans certaines variétés du senhaja (T/S/H), il n'y a pas de *i-* dans les formes aoristes qui suivent l'irréel *ad̲*, par exemple *ad̲ek̲rez* « il va labourer ». Dans ce cas, le préfixe peut être analysé comme nul (*ad̲ ek̲rez*) ou bien le *d̲* final de la particule irréelle peut être considéré comme le nouveau préfixe de sujet (*a d̲-ek̲rez*). Comparez ketama *a y-ek̲rez*, zerqet *ad̲ i-k̲rez*, bonsar a *ad̲ i-k̲rez* ~ *a k̲rez* « il va labourer ».

À la forme négative du perfectif, on trouve que *ḏ*, dans certaines variétés de senhaja (T/S/H), est généralisé à partir de l'aoriste, par exemple *uḏeḵrez š* « il n'a pas labouré ». Là encore, le marqueur 3MS peut être analysé comme zéro (*uḏ eḵrez š*) ou comme *ḏ-* (*u ḏ-eḵrez š*). Comparez ketama *u y-eḵrez š*, zerqet *uḏ i-ḵrez š* et bounsar *uḏ i-ḵrez š* ~ *u ḵrez š* « id. ». On trouve également un marqueur zéro dans certaines variétés du seddat avec le négateur *ur* : *ur eḵrez š* « id. » .

Lorsqu'un verbe commence par une voyelle, le préfixe 3MS est *i-/y-* partout en senhaja dans des contextes non marqués (par exemple au perfectif affirmatif : *y-uri* ~ *i-wri* « il a écrit ») et à l'aoriste après le préverbe *aḏ* : *aḏ y-ari* (la plupart des Snh.), ketama *a y-ari* « il écrira ». Quand le perfectif est nié, 3MS est *i-/y-* dans la plupart des variétés : *uḏ i-wri š (~uḏ y-uri š)* (H/B/Z), *u y-uri š* ~ *i-wri š* (K) « il n'a pas écrit ». En taghzout, le *y-* est facultatif : *uḏ (y-)uri š*. Seddat (dialectalement) a *u ḏ-uri š* ~ *ur uri š*.

L'impératif singulier n'a pas d'affixe PNG. Il existe deux suffixes de pluriel qui forment une isoglosse : *-aṯ* en senhaja occidental (K/T/S), *-ṯ* en senhaja oriental (H/B/Z/M). Le zerqet utilise la forme IMP.PL *-em* devant le clitique du ventif *d* (*em*=*d*).

Le prohibitif, lorsqu'il est utilisé avec le négateur berbère *u* (ou une de ses variantes) actualise la même marque que l'impératif. Les variétés diffèrent dans le choix de la négation préverbale : *u* dans la plupart des variétés (T/B/S), *i* en ketama, *u(r)* en seddat, *(u)la* en hmed. Dans certaines variétés, il existe une forme prohibitive alternative (un calque de l'arabe) avec la négation préverbale empruntée *ma*. Elle prend les affixes PNG de la deuxième personne et utilise le thème de l'aoriste (après l'irréel *aḏ*). L'injonctif utilise le préfixe 1P *n-*, éventuellement combiné avec le suffixe IMP.PL *-aṯ/-eṯ*, toujours utilisé avec la particule irréelle *a(ḏ)*.

La forme relative (également connue sous le nom de « participe berbère ») est une forme verbale utilisée dans les constructions qui relativisent le sujet. La forme est *i-X-n*, invariable pour le nombre et le genre, par exemple *i-ḵerz-en* « qui a labouré ». Le senhaja oriental (Z/M) utilise facultativement une forme pluriel féminin : *i-X-nt*.

Les verbes impersonnels peuvent être utilisés sans marqueur PNG ou les marqueurs PNG peuvent être facultatifs ou figés. Ils peuvent prendre des clitiques pronominaux d'objet indirect, ce qui les rend similaires aux pseudo-verbes, par exemple *(i-)ḥeṣṣ*=*ay* « j'ai besoin ».

4. MAN (mode, aspect, négation)

En berbère, il est d'usage de parler de MAN (Mode, Aspect, Négation) plutôt que de TAM (Temps, Aspect, Mode). La plupart des variétés senhaja distinguent trois MAN : aoriste, perfectif (aussi appelé prétérit ou accompli), et imperfectif (aussi appelé inaccompli, imparfait). Le mezdouy et le dialecte de Wersan de zerqet ont conservé deux formes négatives : le perfectif négatif et l'imperfectif négatif. Certaines bases peuvent être homonymes. L'aoriste, ou base non marquée, lorsqu'il apparaît sans particule, est utilisé pour l'impératif ou comme forme consécutive (narrative). Le plus souvent, il est précédé du *a(d)* de l'irréel ou du futur *(ma)š-a(d)*. Dans ce cas, il exprime un événement non réalisé (irréel, futur, possibilité, souhait, subjonctif, etc.). Le perfectif a différentes interprétations selon le verbe : un événement dynamique dans le passé, ou un événement statif (y compris résultatif). L'imperfectif est utilisé pour le progressif, le simultané, l'habituel, l'itératif, le duratif, etc. Il peut également exprimer l'inchoatif avec des verbes décrivant des états/qualités.

En senhaja, de nombreux verbes ne font pas de distinction formelle entre l'aoriste et le perfectif (AOR = PERF). L'imperfectif est généralement distingué. La formation de MAN est liée aux caractéristiques formelles du verbe. Par exemple, la plupart des verbes CCC ne font pas de distinction formelle entre l'aoriste et le perfectif.

L'aoriste. Il existe des variations au sein des paradigmes de l'aoriste. En zerqet, certains verbes ont l'alternance finale *-i/a* (*i-* apparaît dans 1S et 2S, *-a* dans les autres personnes), correspondant au *-i* invariable dans le reste du senhaja. En ketama, l'alternance *i/a* dans l'aoriste est limitée aux verbes passifs dérivés avec les préfixes *t-*, *n-*, ou *ttya-*.

Le perfectif (accompli). Le perfectif est souvent formé par les mécanismes suivants :

1) le changement de voyelle initiale, par exemple *a-* > *u-*. Ceci se trouve à la fois dans les verbes non dérivés et dérivés (après les préfixes dérivationnels). Le *u* initial après le *s-* causatif peut se transformer en *a* en K/H, mais reste inchangé en zerqet.

2) le changement de voyelle médiane. On le trouve en ketama/hmed, mais pas en zerqet.

3) l'insertion ou l'alternance de la voyelle finale. Dans ce cas, le perfectif a une alternance *-i/a* (cf. aoriste en *-i/a* dans zerqet). Les verbes qui changent le *-u* final en *-i/a* final au perfectif est une isoglosse qui distingue le senhaja du tarifiyt. De même, la vocalisation au perfectif des verbes *CC* et *CCV* est la même, alors qu'en tarifiyt, l'alternance est différente (Kossmann 2017a : 99).

Dans de nombreux types de verbes, AOR = PERF, notamment dans les verbes CCC et CC:C, et dans les dérivations basées sur ces verbes. Il y a quelques verbes CC qui ont AOR = PERF : *ḍer* (S) « tomber », *ġez* (H) « creuser », *res* (H) « atterrir » et *rez* (H/B/Z) « retourner (trans.) ». La différence entre les verbes *CC** (avec une voyelle alternée) et *CC* (AOR = PERF) est une autre isoglosse qui distingue le senhaja du tarifiyt.

Le perfectif (accompli) négatif. Le perfectif négatif est préservé en mezdouy et dans certaines variétés du zerqet. Il est dérivé du perfectif par le changement de voyelle (*a* > *i*) ou l'insertion de *i*. Parfois, *a* reste inchangé. Les verbes sans voyelle ordinaire insèrent *i* avant la consonne finale. Contrairement au tarifiyt, *i* peut être inséré dans les verbes CC:C et dans les verbes CCCC.

L'imperfectif (inaccompli). Il existe différentes façons de former l'imperfectif : gémination de la deuxième consonne (C2), dans tout le senhaja ; gémination de la première consonne (C1) combinée à l'insertion de *u* (dans le senhaja central et oriental) ; au moyen du préfixe imperfectif *t(t)-*. Le préfixe est souvent combiné avec des changements vocaliques, tels que 1) l'insertion d'une voyelle ; 2) le remplacement de la voyelle finale ; 3) l'ajout d'une voyelle finale ; 4) l'insertion/remplacement d'une voyelle et l'ajout d'une voyelle finale. Le même verbe peut avoir plusieurs imperfectifs. Il existe des préférences dialectales dans la formation de l'imperfectif.

Le préfixe imperfectif *t(t)-* est réalisé comme *tt* devant une voyelle en ketama. En zerqet, le préfixe est toujours *t*, et en hmed/taghzout, il est *ṭ*. Le préfixe peut coexister avec le préfixe *s-* du causatif en hmed (et parfois en zerqet). Il s'agit probablement d'une innovation. En ketama et en zerqet, le préfixe ne se combine pas avec le préfixe commun *t-* du passif (ou le préfixe spécifique à ces variétés : *ttya-* en ketama, *ttwa-* en zerqet). Ce qui est différent en hmed et taghzout : en hmed, l'imperfectif *ṭ-* peut se combiner avec le passif *t-* et *ṭṭuya-*. En taghzout, l'imperfectif *ṭ* est réalisé comme *s* devant le passif *ṭ*~*t* et *ṭṭya-*.

Certains verbes n'ont pas d'imperfectif, ou l'imperfectif peut être irrégulier ou supplétif. Exceptionnellement, l'aoriste = l'imperfectif, par exemple dans les cas où l'imperfectif a été réinterprété comme l'aoriste, par exemple *ttru* « pleurer » (ketama).

L'imperfectif (inaccompli) négatif. L'imperfectif négatif est limité à quelques verbes et n'est (partiellement) préservé qu'en mezdouy et dans le dialecte de Wersan de zerqet. Dans les cas où il est différent, il est dérivé de l'imperfectif par un changement de voyelle : *a* > *i*. Il existe également des exemples où le *a* de l'imperfectif reste inchangé. Dans la plupart des cas (et dans tous les cas où il n'y a pas de *a* dans l'imperfectif, le négatif de l'imperfectif est identique à l'imperfectif.

5. Le complexe verbal

Le complexe verbal est défini ici comme étant le verbe ainsi que les clitiques et les particules verbales. Les auxiliaires sont également abordés ici. Certains éléments préverbaux déclenchent l'attraction des clitiques, d'autres non.

5.1. Particules verbales

Il existe des particules modales et négatives. Il y a deux particules modales communes au senhaja : *a(d̲)* por l'irréel et *(ma)š-a(d̲)* pour le futur (c'est une combinaison de *(ma)š* et de *a(d̲)*). Les deux particules signalent que l'action est non (encore) réalisée. En taghzout, à côté de *š-a(d̲)*, on utilise parfois *lˆa(d̲)* pour marquer le futur (combinaison de *la* et de *a(d̲)*).

Il existe des particules négatives préverbales et postverbales. Les particules postverbales sont *š~ši~šay*, généralement en variation libre. Les particules préverbales sont : *u* (général), *ma* (utilisé avec l'aoriste en hmed, à côté du *u* général, et avec les prohibitifs basés sur l'aoriste), *la~ula* (utilisé avec l'imperfectif en taghzout, hmed, certaines variétés de seddat), *ur* (utilisé avec le perfectif dans certaines variétés de seddat). Le négateur *i* est utilisé en ketama dans les prohibitifs. Dans des contextes spécifiques, l'une des deux particules peut être absente. Le *u* du négatif peut être combiné avec la marque de futur *(ma)š-a(d̲)* en zerqet. En hmed, la négation préverbale est facultative dans ce cas, alors qu'en ketama, elle est absente si d'autres éléments préverbaux sont présents.

Outre la négation discontinue, il existe d'autres stratégies de négation. Le négateur *maši* peut être utilisé pour nier la proposition entière. La négation *u* (+ VERBE) + *bu* peut être utilisée avec un complément d'objet. Il existe divers éléments négatifs qui influencent l'utilisation de la négation bipartite.

5.2. Clitiques verbaux

Les clitiques verbaux sont mobiles et peuvent être placés avant le verbe dans certains contextes. Les clitiques verbaux comprennent, d'une part les clitiques pronominaux d'objet direct (OD) et d'objet indirect (OI), d'autre part le clitique déictique ventif *d*. Bien qu'on les trouve habituellement avec les verbes, les clitiques pronominaux d'OD peuvent également se trouver avec les pseudo-verbes.

Les clitiques OD. La forme des pronoms clitiques dépend du contexte. La distinction principale est entre les clitiques postverbaux et les clitiques préverbaux. Au sein des clitiques postverbaux, il existe des sous-séries en fonction de la forme du verbe qu'ils suivent : la série *a* suit une base verbale à finale vocalique, la série *b* suit une base verbale à finale consonantique et la série *c* suit une marque suffixée de sujet.

En senhaja, les séries *a* et *c* sont identiques (*a* = *c*), sauf que les pronoms de la série *a* sont à initiale consonantique. La principale différence entre les séries *b* et *a/c* se situe au niveau de la troisième personne.

Dans les clitiques préverbaux, il n'existe qu'une série. Les clitiques préverbaux diffèrent des clitiques postverbaux sur trois points majeurs :
– dans certaines variétés du senhaja (K/T/Z), le clitique préverbal 1S a deux formes : le *y* régulier, ou le *yṯ* (K)/*yḏ* (T/Z) – une innovation utilisée dans des contextes spécifiques ;
– le clitique 1P avant le verbe est *ġen* dans la plupart des variétés, *hen* en ketama, vs. le postverbal *(a)neġ* (T/S)/*(a)naġ* (la plupart des Snh.)/*(a)na* (K) ;
– le clitique 3P avant le verbe est *hen* en ketama (comme le 1P avant le verbe) et hmed.

Les clitique OI. Morphologiquement, les clitiques OI et les suffixes pronominaux (discutés ci-dessous) appartiennent au même ensemble : les clitiques OI sont constitués de *a* + suffixe pronominal. Contrairement aux pronoms clitiques indépendants et OD, les clitiques OI ne distinguent pas le genre à la troisième personne du singulier. Dans certaines variétés senhaja, les clitiques pronominaux OI et OD sont homophoniques, sauf pour la troisième personne. Dans d'autres variétés, les clitiques OD et OI diffèrent également aux autres personnes. Les variétés diffèrent dans les distinctions qu'elles expriment.

Le ventif. Il n'y a qu'un seul clitique déictique en senhaja : le *d* ventif, qui indique souvent la direction vers le locuteur. Le ventif a différents allomorphes selon le contexte et le dialecte. Il y a probablement une relation entre le *d* ventif et les déictiques nominaux proximaux. Dans certaines variétés (H/B/Z, certaines variétés du ketama), après des verbes à finale consonantique, la forme du ventif est *id*. Dans d'autres variétés (T/Z, variétés de ketama), le clitique reste *d* dans de tels contextes.

5.3. Auxiliaires de temps et de mode

Le passé. Les variétés de senhaja ont des marqueurs différents pour rendre explicite la référence au passé : *ara*~*ala* (K), *indi* (T), *iža* (Z). En hmed, le marqueur du passé *g* et le verbe « être » sont fusionnés dans la forme, *gelli/a*, qui peut être optionnellement conjugué. Lorsqu'il est utilisé en combinaison avec le verbe au perfectif, le marqueur du passé rend la référence au passé explicite ou exprime un événement antérieur dans le passé.

Le marqueur du passé est utilisé avec l'imperfectif pour exprimer une action continue ou habituelle dans le passé. La combinaison du marqueur du passé (+ 'être') + futur *š-a* + verbe à l'aoriste exprime un événement antérieur non réalisé. Pour faire référence au passé avec un prédicat non verbal, on utilise, en ketama, le verbe « être » au perfectif, précédé du marqueur du passé. En taghzout et en zerqet, après le marqueur du passé, l'utilisation de verbe « être » est facultative.

Le futur. Pour faire référence au futur, avec un prédicat verbal, le verbe est utilisé à l'aoriste avec la particule irréelle *ad* ou le futur *(ma)š-a*. Avec les prédicats non verbaux, le plus souvent en senhaja, on utilise le verbe « être ». La construction basée sur « trouver » a été grammaticalisée en tant que marqueur de futur en hmed. Elle peut prendre des pronoms personnels arabes, bien que l'origine de la construction soit berbère. Les auxiliaires du futur peuvent être combinés avec un verbe au perfectif pour exprimer un événement qui sera accompli dans le futur ou avec un verbe à l'imperfectif pour exprimer une action continue dans le futur. Les mêmes verbes « être » ou « trouver » à l'imperfectif peuvent être utilisés pour exprimer l'habituel avec des prédicats non verbaux.

La particule *aqa*. L'élément *(a)qa* se trouve dans tout le senhaja et se présente sous différentes formes et significations selon la variété considérée. Dans la plupart des variétés, *aqa*, qui peut prendre les clitiques OD de la deuxième personne, est utilisé pour attirer l'attention. En senhaja oriental (B/Z), *aqa* peut être utilisé comme un marqueur spécifique de référence de l'énoncé au présent. Le pseudo-verbe *(a)qa* en zerqet peut prendre tous les clitiques OD et se trouve généralement avec des prédicats non-verbaux, en particulier dans les expressions locatives. Lorsqu'il est combiné avec les clitiques pronominaux, il existe différentes bases en fonction de la personne du clitique. Avec les clitiques de la troisième personne, il existe une distinction entre le distal (*aqay*) et le proximal (*qay*), tandis que *aq* est une forme générique, non marquée.

6. Nom

Il existe deux grands types morphologiques de noms en senhaja. Les noms de la classe I ont une morphologie berbère, tandis que les noms de la classe II (empruntés) conservent leur morphologie d'origine et se présentent avec l'article défini arabe *l-*. Les emprunts aux langues européennes sont généralement intégrés à la classe II. La troisième classe, beaucoup plus réduite, est constituée de noms dépourvus d'affixes.

Les noms distinguent le genre (masculin et féminin), le nombre (singulier et pluriel) et l'état (libre et annexé).

Le genre. Dans les noms de la classe I, la plupart des noms masculins ont un équivalent féminin, dénotant soit une différence de genre naturel, soit une différence de taille (augmentatif vs. diminutif).

Le nombre. Souvent les noms de la classe III n'ont pas de correspondant au pluriel (cf. ci-dessous). Les noms de masse peuvent être, soit toujours au singulier, soit toujours au pluriel.

L'état. Les noms de la classe I distinguent deux états liés au contexte syntaxique, traditionnellement appelés *État Libre* (EL) et *État d'Annexion* (EA). L'utilisation des états est limitée en senhaja. L'EL est utilisé dans la plupart des contextes, tandis que l'EA apparaît après la plupart des prépositions et après le numéral « un ». L'état est marqué par un changement du préfixe nominal. Tous les noms ne marquent pas explicitement l'état.

Les syntagmes nominaux peuvent fonctionner comme des prédicats. La plupart des variétés senhaja emploient la particule prédicative *d̲* dans ce cas (il est obligatoire en zerqet, facultatif en taghzout et en hmed). En ketama, il n'y a pas de prédicatif *d̲*. La négation d'un prédicat nominal est généralement réalisée, soit par une forme niée du verbe « être » (surtout en senhaja occidental et central), soit par la négation unique (non discontinue) *maši* (de l'arabe), surtout en zerqet. Le taghzout dispose également d'autres moyens pour nier un prédicat nominal, par exemple avec la particule invariable *uliš*, ou avec *u šay* préposés au prédicat, dans cet ordre.

Le nom à morphologie berbère (classe I)

Les noms qui suivent la morphologie berbère se composent au maximum d'un préfixe, d'une base et d'un suffixe. Les trois catégories nominales (nombre, genre et état) sont exprimées par des affixes et, dans le cas du nombre, peuvent parfois être exprimées dans la base. Le préfixe peut exprimer l'état, le nombre et le genre, tandis que le suffixe exprime (à nouveau) le nombre et le genre. La plupart des noms masculins singuliers commencent par un *a-*. Les noms féminins ont généralement le préfixe *t̲-* (absent en ketama) et le suffixe *-t̲* (qui peut être librement omis en hmed). Après le préfixe *t̲-*, la plupart des noms féminins ont *a*.

Il existe deux types fondamentaux de formation du pluriel : externe (changement d'affixes) et apophonique (changement de la voyelle du base). Les noms peuvent avoir plusieurs formes de pluriel utilisées dans le même dialecte. Au pluriel externe, dans les noms masculins, si le préfixe est *a-* au singulier, il devient généralement *i-* au pluriel et

le suffixe *-en* est ajouté. Les noms singuliers commençant par *i* conservent la voyelle au pluriel. Pour les noms féminins, l'initiale *ṯa-* > *ṯi-* et le suffixe *-in* est ajouté. Au pluriel, le suffixe féminin *ṯ* disparaît généralement.

Le nom à morphologie arabe (classe II)

Les noms de classe II sont composés de l'article arabe (*l-* ou sa forme assimilée), de la base et (pour certains noms féminins) du suffixe *-a*, par exemple *lwalid* « père », *lwalid-a* « mère ». Tous les noms se terminant par *-a* ne sont pas des féminins singuliers. Quelques noms féminins relevant de la morphologie arabe se terminent par *-et/eṯ*, mais ceci est rare par rapport aux autres variétés berbères. Les noms à morphologie arabe ne distinguent pas les états. La plupart des substantifs distinguent deux nombres. Il existe des pluriels externes et des pluriels apophoniques. Le pluriel des noms de la classe II suit le modèle arabe et est emprunté avec le nom de base. Un nombre limité de noms arabes empruntés ont une forme duelle, ils se rapportent en général aux nombres ou au temps.

Classe sans affixe (classe III)

Les noms de la classe III n'ont ni de préfixe berbère ni d'article arabe. Ces noms ne marquent pas l'état et il n'y a pas de dérivation régulière du genre. Les pluriels sont souvent absents ou sont supplétifs. Alternativement, la forme plurielle relève de la morphologie berbère régulière ou de la classe à morphologie arabe. Certains noms de parenté (mais pas tous) appartiennent à la classe sans affixe, par exemple *gma* (K/S/T) « frère » et son pluriel supplétif *ayṯma* « frères et sœurs ».

Interaction entre le berbère et l'arabe dans la morphologie nominale

Il existe des interactions entre l'arabe et le berbère dans la morphologie nominale. Certains noms ont une forme collective relevant de la morphologie arabe, tandis que le nom féminin berbérisé correspondant se réfère à une unité. Le nom d'unité peut à son tour avoir une forme féminine plurielle de classe I, par exemple *tteffaḥ* (collectif) « pommes », *ṯateffaḥṯ* « pomme » (unité), *ṯiteffaḥin* « pommes » (pluriel). Certains noms ont des diminutifs internes. Dans quelques cas, le modèle apophonique arabe est emprunté pour dériver un diminutif d'un nom berbère. Certains noms sont formés sur la base d'adjectifs arabes empruntés.

Les noms verbaux sont souvent empruntés à l'arabe. Ils peuvent avoir une relation supplétive avec les verbes berbères. On trouve également des noms verbaux relevant de la morphologie berbère et dérivés du verbe de base. Certains verbes correspondent à deux noms verbaux (un dérivé berbère et un emprunté), ce qui donne des doublets, par exemple *ḵšem* « entrer », *aḵšam* ~ *ddḫul* « le fait d'entrer ».

Certains éléments peuvent précéder les noms : *ayṯ* (< berbère) ~ *bni* (< arabe) « fils de » ; *bu, mul,* et le pluriel *sḥab* « propriétaire(s)/possesseur(s) de ». L'élément *bu* est généralement utilisé avec les parties du corps, pour décrire un certain trait.

Clitiques déictiques nominaux

La plupart des variétés du senhaja ont des clitiques suffixés aux noms et expriment une triple distinction dans la deixis exophorique (proximale, médiale et distale). La plupart des variétés ont un clitique anaphorique *nna*, tandis que ketama et taghzout emploient les clitiques distaux comme anaphoriques. Le ketama et le taghzout distinguent le nombre dans les clitiques déictiques (comme dans le ghomara, mais à la différence des autres variétés du senhaja et du tarifiyt).

7. Adjectifs et participes

En senhaja, les adjectifs forment une classe morphologique séparée, avec des marqueurs distincts. Il existe des adjectifs berbères et des adjectifs arabes empruntés. Ils diffèrent par leur marquage morphologique, mais remplissent la même fonction. Les participes arabes empruntés partagent certaines caractéristiques avec les adjectifs : ils peuvent modifier le nom principal et distinguent le même nombre de formes (masculin singulier, féminin singulier et pluriel). Les adjectifs arabes avec pluriel externe et les participes partagent les mêmes suffixes pour marquer le genre et le nombre. Seuls les adjectifs berbères ont des formes dites relatives (car utilisées dans les propositions relatives) morphologiquement dérivées.

Les adjectifs sont conjugués dans certaines variétés du senhaja, ce qui en fait des quasi-verbes. Il existe des différences substantielles à travers le senhaja dans le marquage des adjectifs. En ketama et en hmed, les adjectifs ne sont jamais conjugués, tandis qu'en seddat, les lexèmes apparentés aux adjectifs berbères sont conjugués avec les affixes PNG habituels. Certaines variétés (T/B/Z) ont à la fois des adjectifs berbères conjugués et non conjugués. La conjugaison peut être effectuée par des suffixes uniquement (T/B, certaines variétés de Z), mais elle peut également être régulière (certaines variétés de zerqet). En taghzout et bounsar, les adjectifs et les participes arabes peuvent également être conjugués. Cette conjugaison s'effectue uniquement par des suffixes. La conjugaison suffixale rappelle les verbes statifs que l'on retrouve dans de nombreuses variétés berbères. Cependant, les adjectifs conjugués en senhaja ne sont pas des verbes, car ils ne possèdent pas de distinctions MAN. Les adjectifs conjugués peuvent être considérés comme une catégorie intermédiaire entre les adjectifs et les verbes.

Lorsque les adjectifs et les participes apparaissent seuls, ils font référence au présent ou bien aucune référence temporelle spécifique n'est faite. La référence au futur et au passé est réalisée avec le verbe « être ». Lorsque les adjectifs (ou les participes) fonctionnent comme des prédicats, aucune particule prédicative n'est utilisée (contrairement au prédicat nominal), ce qui montre qu'ils ne sont pas une sous-classe des noms, comme dans d'autres variétés berbères. Il existe différentes stratégies pour nier un prédicat adjectival ou participial, par exemple par la forme niée du verbe « être » ou par la seule négation *maši* (comme pour les prédicats nominaux), mais aussi par une négation discontinue (bipartite). En zerqet, la stratégie dépend du fait que l'adjectif est conjugué ou non.

8. Pronoms

Il existe des pronoms berbères et des pronoms arabes empruntés. Ils peuvent tous deux être indépendants ou liés. Les clitiques pronominaux font partie du complexe verbal (chapitre 5).

8.1. Pronoms berbères

Pronoms personnels indépendants. Les pronoms personnels indépendants en senhaja expriment la personne, le nombre et le genre. Le genre est distingué pour les 2S et 3S partout en senhaja ; dans les 2P et 3P seulement pour le senhaja oriental (Z/M). Certains pronoms ont des formes différentes, soit ils sont en variation libre, soit ils reflètent des préférences dialectales. Certains pronoms ont une forme courte et une forme longue. Les variétés diffèrent dans la spirantisation du *k (>*$\underline{k}$*)* (2S, 2P), $\underline{t} > h$ (3FS), $t > \underline{t}$ (hmed, taghzout en 3MS, 3FS), voyelle *u* vs. *e* (1P, 2P).

Suffixes pronominaux avec noms et prépositions. Les suffixes pronominaux sont des pronoms suffixés à un ensemble limité de noms de parenté et à des prépositions. Certains termes de parenté (classe III) acceptent les suffixes pronominaux pour exprimer la possession, tandis que les noms ordinaires utilisent la construction génitival avec *n* « de ». En absence de suffixe, la référence 1S est comprise, par exemple *gma* « mon frère » vs. *gma-s* « son frère ». Dans les suffixes singuliers, il n'y a pas de variation en senhaja, les variations ne se trouvant que dans les formes plurielles. En mezdouy, avec les suffixes du pluriel, $\underline{t}$ est inséré entre le terme de parenté et le suffixe (comme en tarifiyt). En ketama et en taghzout, les suffixes pronominaux pluriels ne sont pas utilisés dans certains dialectes.

Les pronoms peuvent être suffixés à des prépositions. Les formes sont en grande partie les mêmes que les suffixes avec les noms de parenté, avec quelques différences :
– en 1S, aucun suffixe n'est utilisé avec les noms de parenté, vs le suffixe *-i* avec les prépositions ;
– le mezdouy n'insère pas de *t* entre la préposition et les suffixes du pluriel ;
– le ketama et le taghzout acceptent les suffixes de pluriel avec les prépositions.
La préposition du génitive *n(n)-* suivie des suffixes pronominaux exprime la possession. La forme 1S *inu* est irrégulière.

Têtes pronominales et démonstratifs
Lorsqu'un syntagme nominal est constitué d'une forme pronominale suivie d'une détermination (par exemple une proposition relative), des formes pronominales spéciales peuvent être utilisées, appelées *têtes pronominales*. Les têtes pronominales nues peuvent fonctionner comme têtes de propositions relatives dans certaines variétés de senhaja (K/T/Z). Seul le taghzout marque le nombre. La plupart des démonstratifs peuvent être analysés comme des têtes pronominales avec des clitiques déictiques, avec une triple distinction dans la déixis exophorique et un démonstratif anaphorique supplémentaire dans la plupart des variétés. Cependant, le ketama et le taghzout emploient le démonstratif distal comme anaphorique. La plupart des variétés distinguent le masculin singulier, le féminin singulier et le pluriel commun. Certaines variétés distinguent une forme FP distincte. La formation des mots signifiants « autre » se fait également sur la base de têtes pronominales. À l'exception du mezdouy, les mêmes formes peuvent être utilisées seules (comme noms de tête) ou suivre un nom.

8.2. Pronoms arabes empruntés

Les pronoms indépendants arabes de la troisième personne, complets ou abrégés, se retrouvent dans certaines variétés de senhaja (K/T/H) dans des contextes spécifiques, comme les présentatifs après le présentatif *ha* « ici ». Pour les pronoms autres que ceux de la troisième personne, seuls les pronoms berbères sont utilisés. Les suffixes pronominaux arabes se retrouvent en senhaja avec quelques éléments arabes empruntés. Ils ne peuvent normalement pas être suffixés à des mots d'origine berbère (à une exception près). Selon le lexème et la variété, les suffixes arabes peuvent être en libre variation avec les suffixes berbères. Pour certains éléments (par exemple, *men ġir-* « sauf », *ɛemmeṛ* « jamais »), les formes arabes 1P sont préférées aux formes berbères, même dans les variétés qui emploient des suffixes berbères (Z/M). En senhaja oriental, l'emploi des suffixes arabes se limite aux expressions figées empruntées, comme *mreḥba bi-* « bienvenue ».

La construction *š-aˆtaft* utilisée en hmed comme marqueur de futur est d'origine berbère, mais elle accepte des suffixes arabes. Il s'agit d'une grammaticalisation du verbe *af* « trouver ».

9. Prépositions

Il existe des prépositions simples et des prépositions complexes. Certaines prépositions sont issues de noms et conservent les caractéristiques nominales. Quelques prépositions empruntées à l'arabe peuvent prendre des suffixes pronominaux arabes. Ceci est marginal en senhaja et les exemples sont limités aux expressions figées empruntées à l'arabe. Les prépositions peuvent être divisées en groupes selon l'état du nom qui suit. La plupart des prépositions prennent le nom à l'EA, par exemple le génitif *n* « de ». Après certaines prépositions se terminant par *-g* (T/Z)/*g*^{w} (H), les noms masculins singuliers ont une forme spéciale d'EA à laquelle manque la voyelle initiale pleine. On retrouve cette forme en taghzout, hmed et zerqet : *g* (T/Z)/g^{w} (H) « dans » : *g eḫyam* (T/Z)/ *g*^{w} *eḫḫam* (H) « dans la maison » ; le datif homophone *g* (Z)/ *g*^{w} (H) « pour » et l'ablatif *zeg* (T/Z)/ *zig*^{w} (H) « de ». Certaines prépositions (par exemple *anda* « comme ») prennent le nom à l'EL, parfois en variation libre avec EA, par exemple *bla yaryaz* (H/Z) ~ *bla weryaz* (H/Z) « sans homme ». Il existe des différences dialectales. Après certaines prépositions, l'état du nom est lié au genre, comme dans le cas de l'allatif *za* « à » (H/Z) : *zaˆ(a)rrar* « à l'aire de battage » (EL, nom masculin) vs. *za ṯḥanut* (H/Z) « au magasin » (EA, nom féminin).

De nombreuses prépositions ont deux formes, l'une (généralement plus courte) utilisée devant les noms et l'autre (généralement plus longue) utilisée avec des suffixes pronominaux, par exemple *s ufus* « avec la main » (instrumental) > *sgig-es* « avec elle » (K). Certaines prépositions ne prennent pas de suffixe pronominal, mais sont suivies de pronoms indépendants, par exemple *anda Muḥemmeḏ* « comme Mohammed », *anda netta* « comme lui » (K).

Les prépositions complexes prennent le génitif *n* et le nom suivant est à l'EA. Certaines prépositions peuvent être combinées, par exemple *za ġu ṯḥanuṯ* (H) « au magasin », *ḥetta zaˆ(a)ḫyam* (Z) « jusqu'à la maison ».

Les prépositions peuvent être combinées avec les éléments pronominaux *mmen* (<arabe, en K/H/variétés de Z) ou le berbère *mi* (H/Z), *miḏi* (Z) « quoi/qui » pour former des interrogatifs prépositionnels. Avec *mmen*, les prépositions précèdent le pronom. Avec *mi, les* prépositions suivent le pronom en hmed et en zerqet oriental, alors qu'ils apparaissent des deux côtés du pronom en zerqet occidental, par exemple *s emmen* (K/H), *miyy-es* (H), *mi-s* (Z oriental), *s-mi-s* (Z occidental) « avec quoi » (instrumental).

La possession peut être exprimée avec le génitif *n* « de » ou avec *ġur* « à ». La syntaxe avec *ġur* dans les possessifs est particulière : si le possesseur est exprimé lexicalement, il doit être en position de sujet (précédant *ġur*), par exemple *Muḥemmeḍ ġur-es ddrari* (Mohammed chez-3S enfants) « Mohammed a des enfants ».

Les syntagmes prépositionnels peuvent fonctionner comme des prédicats. Les prédicats prépositionnels sont similaires aux prédicats nominaux dans les mécanismes de négation qu'ils utilisent, par exemple au moyen de la forme niée du verbe « être » ou au moyen de la négation *maši*. Les prédicats prépositionnels pronominalisés peuvent être niés de la même manière, mais ils peuvent aussi prendre la négation discontinue *u...š*, selon la préposition et la variété, par exemple *u kiḍ-es š* (H) (NEG avec-3S NEG) « pas avec lui/elle », *u ġur-es š* (NEG chez-3S NEG) « il/elle n'a pas ».

10. Numéraux

Tous les numéraux cardinaux du senhaja, à l'exception de « un », sont empruntés à l'arabe. Ils sont les mêmes dans toutes les variétés, avec des différences mineures dans la prononciation. Les numéraux cardinaux sont suivis du génitif *n* qui les relie au nom qui suit. Les noms qui marquent l'état sont à l'EA. Pour le numéral « un », le numéral emprunté coexiste avec le numéral berbère, qui peut être utilisé en combinaison avec un nom ou indépendamment. Lorsqu'il précède un nom, « un » peut fonctionner comme marqueur d'indéfini. Il peut également précéder d'autres numéraux dans le sens de « environ », « approximativement ».

Le genre est distingué en senhaja lorsque le numéral « un » est utilisé indépendamment. En ketama et en taghzout, le numéral est facultativement marqué pour le genre lorsqu'il précède un nom. Dans les autres variétés, le numéral précédant un nominal est invariable. Le numéral arabe emprunté « un » peut également être marqué facultativement pour le genre. Lorsqu'il est combiné avec un nom, en ketama et en taghzout, il le suit. Dans les autres variétés, seulement le numéral berbère « un » peut être utilisé avec un nom, qu'il le précède ou le suive.

Dans certaines variétés, le numéral « un » peut apparaître des deux côtés du nom. En ketama et en taghzout, le « un » qui suit le nom est d'origine arabe. En bounsar et zerqet, le numéral qui suit le nom est berbère. En ketama et en taghzout, les deux numéraux, berbère et emprunté, peuvent être utilisés indépendamment. Lorsque le numéral « un » est nominalisé, il peut être utilisé dans le sens de « quelqu'un ». Dans ce cas, il peut être précédé par un marqueur indéfini, soit le numéral prénominal « un », soit l'indéfini *ši*.

Les numéraux ordinaux, tous empruntés à l'arabe, forment deux ensembles distincts : ceux de l'ensemble 1 suivent le nom et distinguent trois formes (MS, FS, PL) ; ceux de l'ensemble 2 précèdent le nom et ne marquent ni le genre ni le nombre. Les noms de classe II sont généralement dépourvus de l'article arabe *l-* dans la plupart des variétés, alors qu'en hmed, l'article arabe peut être présent. En hmed, les numéraux de l'ensemble 1 peuvent précéder le nom et ceux de l'ensemble 2, suivre le nom.

Pour exprimer « avec le (nombre X) de nous/vous/eux », ketama utilise la construction *b* (<Ar.) ~ *s* (<Berber) « avec » + numéral + *bi-* (<Ar.) « avec » + suffixe pronominal arabe. Dans le reste du senhaja, la construction est : *s* (<Berber) « avec » + *yes/is-* (morphème de liaison) + suffixe pronominal berbère.

11. Adverbes

En senhaja, on trouve de véritables adverbes (dépourvus de caractéristiques nominales), mais aussi des noms qui peuvent être utilisés adverbialement sans préposition (notamment dans les expressions locatives). Les adverbes ainsi que certains noms utilisés adverbialement peuvent prendre des clitiques déictiques. Ceux-ci, cependant, ne coïncident pas toujours avec la série régulière des clitiques déictiques.

Le syntagme adverbial peut fonctionner comme un prédicat. Dans cette fonction, il peut suivre ou précéder le sujet. Le prédicat adverbial est généralement nié en utilisant les mêmes stratégies qu'un prédicat nominal (par la forme niée du verbe « être » ou au moyen du négateur *maši*). Contrairement aux prédicats adjectivaux ou participiaux, le prédicat adverbial ne peut généralement pas être nié par la négation discontinue *ma…š* ou *u…š*, à l'exception de *ḏin* (T/H/Z) « là » qui accepte la négation discontinue *u…. š*, ce qui donne *u ḏin š* « il n'y a pas ».

12. Chaîne de clitiques verbaux et déplacement des clitiques

Les clitiques verbaux peuvent apparaître dans une chaîne, suivant ou précédant le verbe, c'est pourquoi ils peuvent être appelés *satellites verbaux*. La mobilité distingue les clitiques syntaxiques (verbaux) des clitiques prosodiques (nominaux). Les prépositions avec des suffixes pronominaux et des adverbes déictiques ne subissent pas d'attraction en senhaja. Bien que l'élément préverbal agisse comme attracteur, il n'est pas sûr qu'il serve également d'hôte aux clitiques. Il existe des arguments pour considérer que les clitiques sont rattachés au verbe dans les deux positions.

Les clitiques en senhaja se trouvent souvent en position P2 (Wackernagel). Cependant, la position P2 n'est pas clairement définie, car la position préverbale peut être occupée par plusieurs éléments. Un autre problème est qu'en senhaja oriental (zerqet), dans les contextes de relativisation, le relateur n'est pas obligatoire et les clitiques sont toujours avant le verbe, alors que les clitiques ne peuvent pas être rattachés à l'hôte « zéro ». Différentes analyses ont été proposées pour expliquer les règles de comportement des clitiques en berbère, par exemple qu'ils doivent s'attacher à des catégories fonctionnelles plutôt qu'à des catégories lexicales ou que l'inversion clitique-hôte a lieu lorsqu'il n'y a pas d'élément grammatical en position préverbale. Ces analyses n'expliquent pas pourquoi les clitiques peuvent rester postposés en présence de certaines catégories fonctionnelles en position préverbale (par exemple, un marqueur de passé). Ces analyses n'expliquent pas non plus le comportement divergent des clitiques en ketama et dans certaines autres variétés berbères, comme l'attraction partielle des clitiques et la répétition des clitiques.

Dans les contextes non marqués (perfectif affirmatif), les clitiques suivent le verbe. Lorsqu'ils apparaissent ensemble, la séquence est OI + OD + VENT, où n'importe lequel des membres peut être absent. Conformément à la contrainte cas-personne, seuls les clitiques OD de la troisième personne peuvent suivre un clitique OI. Avec les pronoms OD qui ne sont pas de la troisième personne, l'OI est exprimé par le syntagme prépositionnel. Dans des contextes spécifiques, les clitiques se trouvent en position préverbale. Selon le contexte et le dialecte, l'attraction des clitiques peut être facultative ou obligatoire. Les contextes suivants peuvent provoquer le déplacement des clitiques en position préverbale :

1) Les particules préverbales. Le *aḍ* d'irréel et le *(ma)š-aḍ* du futur attirent obligatoirement les clitiques. Le négateur *u* (et ses variantes) attire généralement les clitiques. Dans certaines variétés de senhaja, l'attraction des clitiques n'est pas obligatoire avec l'imperfectif négatif et les formes verbales prohibitives.

2) La relativisation. L'attraction clitique a lieu dans des contextes de relativisation (y compris les clivées, un sous-type de relativisation), avec un relateur obligatoire *a* dans ketama et indépendamment de la présence du relateur dans les variétés hmed et zerqet.

3) Les interrogatives portant sur le contenu. En ketama, il n'y a qu'une seule construction : tous les mots interrogatifs sont suivis par le relateur *a* et l'attraction des clitiques est obligatoire. En hmed, lorsque les clitiques précèdent le verbe, le relateur est optionnel ; lorsqu'ils le suivent, il n'y a pas de relateur. En zerqet, il n'y a pas de relateur et les clitiques peuvent précéder le verbe de façon optionnelle. La position préverbale des clitiques est obligatoire dans hmed et zerqet après le pronom indéfini *a* qui peut fonctionner comme un interrogatif ayant le sens de « quoi ? », « qui ? ».

4) La subordination. La préfixation du clitique peut (facultativement) avoir lieu après certaines conjonctions, comme *ani* (H/Z), *mani* (K) « où » ; *zg^{w}ami* (H), *zgamis* (Z) « quand », et est obligatoire en ketama après *ga* « quand » qui pourrait contenir le relateur *a*. Après *matta* (K/Z), *manṭṭa* (H) « si » (hypothétique), les clitiques sont postposés en ketama, mais peuvent être placés avant le verbe en hmed/zerqet. D'autres clitiques ne provoquent pas l'attraction du clitique, par exemple *ka, luka* « si » (contrefactuel), *ḥetta* « jusqu'à », *waḫḫa* « bien que ».

Plusieurs variétés senhaja (T/S/H/B, certaines variétés de ketama) ont un comportement clitique divergent avec les formes verbales de l'imperfectif négatif. En taghzout et hmed, ce comportement inhabituel peut être lié à la présence de la négation spécialisée *(u)la* utilisée avec l'imperfectif. Cependant, dans d'autres variétés du senhaja, les clitiques peuvent également rester postposés avec la négation générale *u*. Le prohibitif, qui est basé sur l'imperfectif, a lui aussi un comportement divergent, probablement par analogie avec l'imperfectif. Dans la plupart des variétés senhaja ayant un comportement divergent des clitiques à l'imperfectif (S/H/B), les clitiques sont normalement soit postposés au verbe, soit préposés ensemble, dans une chaîne de clitiques. Le taghzout admet diverses déviations du modèle habituel. Elle est également différente du ketama, où le comportement divergent des clitiques est lié à la nature des clitiques plutôt qu'à le mode/aspect du verbe.

13. L'attraction des clitiques en ketama

En ketama, l'attraction des clitiques ne suit pas le schéma habituel, où tous les clitiques sont placés avant le verbe, ensemble, comme une chaîne clitique ininterrompue (OI + OD + VENT). On retrouve le schéma habituel lorsque la chaîne clitique consiste en un clitique pronominal et un ventif (OI + VENT, ou OD + VENT). Cependant, lorsque le verbe contient deux clitiques pronominaux, typiquement, seul OI est avant le verbe, tandis que OD reste postposé, d'où résulte une attraction partielle des clitiques : OI + VERBE + OD. Dans une autre construction, OD est (apparemment) doublé, apparaissant des deux côtés du verbe (OI + OD + VERBE + OD). Cependant, le clitique OD avant le verbe est un *t* invariable, non marqué en genre et nombre : il signale simplement que le vrai OD arrive en position postverbale. Dans de tels exemples, OD avant le verbe peut être analysé comme un OD factice ou comme un élément de désambiguïsation. Lorsque OD a la forme plurielle dans une chaîne clitique OI + OD, des différences apparaissent selon le nombre du pronom OI. Avec un OI singulier, nous pouvons observer : l'attraction partielle des clitiques (OI + verbe + OD), avec ou sans OD factice ; la répétition de l'OD (OI + OD + t + verbe + OD) ou l'attraction complète des clitiques (OI + OD + *t* + verbe). Dans les deux derniers cas,

l'OD factice est obligatoire. Avec les clitiques OI pluriels, seule la préfixation partielle du clitique est possible (OI + verbe + OD), avec ou sans OD. Lorsque la forme verbale contient les trois clitiques, le scénario le plus typique est l'attraction partielle des clitiques combinée avec la répétition du ventif : OI + VENT + verbe + OD + VENT. D'autres constructions sont également possibles. L'attraction complète des clitiques (OI + OD + VENT + verbe) est également possible, mais rare. Là encore, il existe des différences dialectales : certains dialectes préfèrent des modèles spécifiques.

Le ketama utilise un *i* prohibitif spécialisé, qui ne peut pas être suivi par un clitique. Le schéma devient alors : *u* + clitique(s) + *i* + verbe + NEG *ši* — schéma qu'on trouve aussi dans seddat et (comme une possibilité) dans taghzout (avec un *i* optionnel). C'est la seule construction où le clitique est séparé du verbe, et l'identification de l'hôte du clitique n'est pas évidente. Les clitiques dans les prohibitifs suivent les mêmes règles que dans les autres formes verbales, avec attraction partielle des clitiques et doublement du ventif dans des conditions spécifiques.

Dans le dialecte de Lmekhzen, quand les clitiques OD de la troisième personne se combinent avec le ventif, ce dernier précède le verbe, OD + VENT restant postposé. Cette construction permet de distinguer le genre du pronom OD, qui autrement est non marqué dans la construction s'il y a attraction complète. Dans le dialecte Sahel du ketama, les clitiques se comportent comme en taghzout : ils montrent un comportement divergent pour l'imperfectif nié et le prohibitif, bien que le négateur utilisé soit *u* et non *ula*. Les déviations du modèle habituel ne sont pas celles de Beni Aisi et Beni Hmed. Une autre possibilité est d'avoir un comportement divergent des clitiques avec des formes verbales 2P (également en dehors de l'imperfectif). De telles déviations du modèle habituel ont probablement à voir avec la morphophonologie.

En dehors du senhaja, d'autres variétés berbères montrent différentes déviations dans le comportement des clitiques. Il y a certaines tendances, par exemple, à mettre OI en avant et à garder les autres clitiques (OD et ventif) postposés ou à répéter le ventif. Des déviations similaires à celles du ketama se retrouvent en ghomara, mais aussi en chaouia et mozabite en Algérie et en tamezret en Tunisie. Différents facteurs ont pu jouer un rôle dans le développement d'un nouveau système. Dans un certain nombre de variétés, comme en senhaja, la grammaticalisation et la réanalyse pourraient être responsables du changement de comportement du clitique.

14. Morphophonologie du complexe verbal

Il existe diverses assimilations et allomorphies dans le complexe verbal. Différents morphèmes interagissent : la base du verbe et les préfixes ; les clitiques et les affixes ;

les particules, les affixes et les marques de PNG. L'assimilation est généralement régressive, à l'exception du *d* ventif avant le verbe, qui provoque l'assimilation du *t* qui le suit (par exemple, le marqueur de sujet du verbe 2S/3FS/2P).

Le *t* du préfixe du sujet ainsi que le *t* du passif ou de l'imperfectif, s'assimilent au *d* ou *ḍ* de la première consonne du verbe en ketama et en zerqet, mais pas en hmed. Dans les formes d'impératif pluriel, le suffixe *-aṯ* en ketama s'assimile aux clitiques (OD, ventif), tandis qu'en zerqet, le suffixe *-eṯ* est remplacé par *-em* dans ce cas.

Les clitiques pronominaux peuvent s'assimiler au ventif *d* qui suit, par exemple 3S:OI *as* + *d* > *az* = *d*, 2MS *ak* + *d* > *ag* = *d*, y compris l'assimilation à distance dans zerqet de 3P:OI *asen* + *d* > *azen* = *d*. Les clitiques OD de troisième personne et le ventif (qui est généralement réalisé comme *id* à la suite des pronoms de troisième personne) peuvent prendre des formes spécifiques. En position préverbale, le 3MS et le 3FS:OD peuvent fusionner.

En ketama, le *-ġ* final du marqueur de sujet 1S et du clitique 1P:OI est restauré lorsqu'il est suivi par un clitique (par exemple le ventif) ou une particule (ainsi la négation *š*), par exemple *kešm-a* « je suis entré » > *kešma-ġ* = *d* « je suis entré ici », *u kešma-ġ š* « je ne suis pas entré ». S'il est suivi du clitique OD, le *ġ* est assourdi et réalisé comme *ḫ*. De même, le clitique 1P *na* (OD/OI) est réalisé comme *naġ* s'il y a un clitique ou une particule qui le suit. Lorsque 1P:OI *na(ġ)* est suivi d'un clitique OD, il se produit un assourdissement : *naġ* > *naḫ* devant 3S:OD *ṯ/t* et 3P *ṯen*. On le retrouve également en zerqet, mais pas en hmed.

Lorsqu'une base verbale à finale vocalique est suivie d'un clitique à voyelle initiale, soit les voyelles coalescent, soit une semi-voyelle est insérée, par exemple *i-nna* + *as* (3MS-say:P + 3S:OI) > *innas* (K/H/Z), *innayas* (K/Z) « il lui a dit ». Quand un clitique à voyelle initiale suit un suffixe sujet avec un schwa (par exemple 3P *-en*), le schwa est réalisé comme un *a* en ketama, alors que le mot suit une procès de résyllabification en hmed/zerqet.

15. Conclusion

Cette thèse décrit les principales différences et les caractéristiques communes que l'on retrouve parmi les variétés berbères senhaja. Les principaux niveaux d'analyse (phonologie, morphologie, morphosyntaxe) ont été traités. En raison de la grande influence de l'arabe, une attention particulière a été accordée aux phénomènes relevant de la linguistique de contact. L'emprunt de modèles arabes a été trouvé dans la dérivation des verbes (par exemple, la dérivation des causatifs) et dans la dérivation des participes sur la base de verbes berbères, ainsi que dans la dérivation des diminutifs sur la base de noms berbères.

Les variétés étudiées sont intéressantes à différents points de vue. Par exemple, il existe une classe morphologique distincte d'adjectifs, ce qui n'est pas courant dans les langues berbères. En senhaja, les adjectifs forment une classe distincte. Certaines variétés de senhaja permettent de conjuguer les adjectifs, ce qui les rapproche des verbes, mais sans les distinctions aspectuelles. Une autre catégorie morphologique intéressante est constituée par les verbes impersonnels. Contrairement aux adjectifs et comme les verbes, ils peuvent avoir des distinctions aspectuelles et ont une origine verbale. Contrairement aux verbes réguliers, ils n'ont pas de marqueur de sujet obligatoire PNG ou utilisent un préfixe de sujet figé à la 3MS. Très souvent, ces mots prennent des clitiques pronominaux d'objet indirect. Les pseudo-verbes sont une autre catégorie de mots qui peuvent prendre des clitiques pronominaux verbaux, tout en manquant de toutes les autres caractéristiques verbales (tels que le marquage du sujet PNG ou les distinctions aspectuelles). Les clitiques pronominaux trouvés avec les pseudo-verbes ont la même forme que les clitiques pronominaux trouvés avec les verbes, bien qu'ils ne subissent pas d'attraction lorsqu'ils sont placés dans les conditions syntaxiques spéciales.

Une attention particulière a été accordée au complexe verbal et au comportement des clitiques verbaux. Les derniers chapitres ont porté sur les questions suivantes : quelles combinaisons de clitiques sont possibles en senhaja ? comment les clitiques se comportent lorsqu'ils sont combinés ? dans quelle mesure ce comportement diffère dans les variétés senhaja ? quels sont les facteurs qui influencent le comportement des clitiques ? Il est apparu que la nature des clitiques ainsi que l'aspect/mode du verbe ont de l'importance. Comme nous l'avons démontré au chapitre 13, l'attraction des clitiques, en ketama, suit des règles spécifiques qui ne sont pas valables dans les autres variétés senhaja. Ainsi, il y a une tendance à diviser la chaîne de clitiques et à ne mettre en avant que le clitique OI, tandis que le clitique OD reste postposé. Lorsque trois clitiques verbaux sont présents, il y a une tendance à répéter le clitique ventif dans les deux positions (préverbalement après OI, et postverbalement après OD). De telles déviations du modèle habituel ne sont pas attestées dans les autres variétés senhaja. En revanche, on trouve d'autres déviations du schéma habituel dans d'autres variétés du senhaja (taghzout, hmed, seddat, bounsar). Contrairement au ketama, ces déviations sont généralement liées à l'aspect/mode du verbe (imperfectif, prohibitif), plutôt qu'à la nature des clitiques.

En étudiant les règles régissant l'attraction des clitiques en ketama, nous avons montré quelle était la spécificité du ketama au sein du senhaja et parmi les autres variétés berbères. Le comportement divergent des clitiques en ketama apparaît comme une innovation. Réfléchissant à l'histoire de l'attraction des clitiques en berbère, on en a conclu que plusieurs facteurs influençaient le comportement des clitiques en senhaja.

Certains de ces facteurs sont partagés avec d'autres variétés berbères, telle que la différence de comportement des clitiques selon que les contextes sont non marqués (les clitiques sont alors postposés) ou marqués (la position devenant préverbale). D'autres facteurs sont spécifiques aux variétés étudiées, comme la nature des clitiques impliqués (ketama) ou l'aspect/mode du verbe (taghzout et hmed). Cette thèse montre que les principales forces motrices derrière le comportement divergent des clitiques en senhaja sont : la réanalyse, la grammaticalisation et la volonté d'éviter l'ambiguïté.

Le ketama n'est pas la seule variété berbère à présenter un comportement divergent des clitiques. Le ghomara, en particulier, présente des caractéristiques très similaires. Comme l'aire ghomara est géographiquement proche, ces déviations peuvent être considérées comme une innovation partagée. En même temps, quelque chose de similaire se trouve dans les parlers chaouia et mozabite en Algérie et en tamezret en Tunisie. Le redoublement du ventif est également partagé par un certain nombre de langues berbères.

Bien que certains détails soient connus sur l'attraction des clitiques dans des variétés berbères particulières, nous manquons toujours de connaissances précises sur la variation du comportement clitique à travers le berbère et sur le développement historique de l'attraction des clitiques. Puisque l'attraction des clitiques concerne presque tout le monde berbérophone, il doit s'agir d'une caractéristique archaïque. Dans certaines langues berbères, ce trait s'est perdu ou a subi des modifications. Dans certaines variétés, l'attraction des clitiques tend à disparaître, et est devenue partielle ou s'accompagne d'une répétition du clitique. Bien que le système puisse sembler irrégulier à première vue, il présente quelques régularités dans un système divergent. Parmi les langues berbères, certaines présentent d'autres déviations qui peuvent être des innovations indépendantes. Cependant, il existe des tendances communes, par exemple, la disparition de l'attraction des clitiques, l'attraction partielle et la répétition, en particulier du ventif.

Le fait que des déviations similaires à celles présentes dans le ketama se retrouvent dans le ghomara indique que cette caractéristique n'est pas récente, dans la mesure où il y a actuellement peu de contact entre le ghomara et le ketama. Cette caractéristique partagée pourrait être le signe que le ketama et le ghomara ont une origine commune. Nous ne pouvons pas non plus exclure la possibilité que les locuteurs berbérophones du ghomara et du ketama aient été géographiquement plus proches par le passé et qu'ils aient pu s'influencer mutuellement. Il reste à expliquer pourquoi certaines innovations, et pourquoi celles-ci, sont préférées à d'autres. De ce point de vue l'histoire complète du comportement des clitiques berbères reste encore à écrire.

Appendix 1. Texts in Senhaja Berber

Ketama Berber: 'A joke about a mouse'

This joke was recorded in 2014 with an 11-year-old female speaker (Sana) in Beni Hmed.[768] It is in Beni Hmed dialect of Ketama. This joke was accompanied by some expressive sounds and gestures that are difficult to represent in a written text. They are explained in footnotes. Expressive lengthening is represented by repeating the vowel, as e.g. in *i-ddaaaa* 'he went', *i-ntleeeef* 'he got lost'.

1 *druḫ ya wergaz netta itˆ emġarṯ nn-es*
now one man:EL he andˆ woman:EA of-3S
ara lla-n sakn-in g elMeġreb g ya weḫḫam g elMeġreb.
PST be:P-3P living-PL in Morocco in one house:EL in Morocco
'So, one man with his wife was living in Morocco, in one house in Morocco.'

2 *qqim-en qqim-en... qqim-en qqim-en qqim-en, yaḵ?*
stay:P-3P stay:P-3P stay:P-3P stay:P-3P stay:P-3P right?
'So it went on like this, right?'

3 *I-nna ˆs argaz =aḏin itˆ emġarṯ nn-es:*
3MS-say:P ˆ3S:IO man:EL =DIST:SG toˆwoman:EA of-3S
'That man said to his wife:'

4 *yaḷḷah a n-eddu ar Fṛansa! yaḷḷah a n-eddu ar Fṛansa!*
let's NR 1P-go:A to France let's NR 1P-go:A to France
'Let's go to France! Let's go to France!'

5 *yaḷḷah a n-eddu a n-sara af uzellif nn-a*
let's NR 1P-go:A NR 1P-travel:A on head:EA of-1P
'Let's go travelling (for our sake/pleasure),'

6 *a n-eddu ar Fṛansa, a n-sara,*
NR 1P-go:A to France NR 1P-travel:A
a n-zugger ddenya.
NR 1P-see:A world
'Let's go to France, let's travel and see the world.'

[768] More texts (some with, some without the glosses) in different Senhaja varieties can be consulted at https://academia.li/gutova/senhaja-texts. This file also contains the links to some audio recordings.

7 *dda-n, ga dda-n qqim-en g Fṛansa ši lmudda...*
go:P-3P when(ˆRM) go:P-3P stay:P-3P in France some time
'They went. When they went, they stayed in France some time...'

8 *werri-n =d a[r]ˆ lMeġreb*
return:P-3P = VC to Morocco
'They came back to Morocco.'

9 *argaz = aḏin ga d= y-usa,*
man:EL = DIST:SG when(ˆRM) VC = 3MS-come:P
y-ufa žuž n iġeṛḏayen.
3MS-find:P two of mice
'That man, when he came, found two mice.'

10 *y-ufa žuž n iġerḏayen, yan i-ga =ṯ ḏi*
3MS-find:P two of mice one 3MS-do:P = 3MS:DO here
i yan i-ga =ṯ ḏi, yaḵ?
and one 3MS-do:P = 3MS:DO here right?
'He found two mice, (and) he out one here, and he put (another) one here, right?'[769]

11 *i-dda ġu ya lfaṛansi, i-šebbr =iṯ,*
3MS-go:P at one Frenchman 3MS-grab:P = 3MS:DO
i-qqim i-qqṛ =as
3MS-stay:P 3MS-say:I = 3S:IO
'He went to one Frenchman, he grabbed him, and he kept saying to him...'

12 *yaḷḷah a ˆddu-ḏ ar uḫḫam inu*
let's NR ˆ2:go:A-2S to house:EA of:1S
'Why don't you go to my house.'

13 *amġarṯ inu a ṯˆṯiyyeb afulust mḥemmṛ-a*
woman:EL of:1S NR 3FS-cook:A chicken roasted-FS
'My wife will cook a roasted chicken.'

14 *a ˆt-u šššlaḍa, a ˆt-u kulši, af ṯṯabla...*
NR ˆ3FS-do:A salad NR ˆ3FS-do:A all on table
a ˆt-nuwwaɛ ṯṯabla.
NR ˆ3FS-prepare:A table

[769] This sentence was accompanied by a gesture: the speaker did as if she put something in her right pocket, and then in her left pocket, as if each mouse was now in a different pocket.

‘She will make a salad, she will make everything, for the table... she will prepare the (whole) table.’

15 *I-nna ˆs: “wa lla, amġarṭ baqi εa š-a ˆddu,*
3MS-say:P ˆ3S:IO oh no woman:EL left still FT-NR ˆ3FS:go:A
baqi εa š-a ṭˆṭiyyeb, š-a ˆt-seḫḫaṛ,
left still FT-NR 3FSˆcook:A FT-NR ˆ3FS-shop:A
š-a ˆt-sekker afulus, iwa bezzaf.”
FT-NR ˆ3FS-make chicken so many
‘He (i.e. the Frenchman) told him: “Oh no, the woman still has to go, still has to cook, to go to a shop, to prepare the chicken, that’s a lot.’

16 “*baqi εa š-a ˆddu-ḏ, a ˆs= t-enn-eˆ t*”
left still FT-NR ˆ2S:go:A-2S NR ˆ3S:IO= 2S-say:A-2Sˆ 3S:DO
‘You still have to go, to tell it to her.’

17 *I-nna ˆs “lla, i teḵṣuḏ ši*”
3MS-say:P ˆ3S:IO no NEG fear:I:IMP:SG NEG
‘He (i.e. the Moroccan) told him: “Do not be afraid!”’

18 *ġur-i wa maš-a y-eddu, š-a y-en kuuuuulši,*
at-1S PH:M FT-NR 3MS-go:A FT-NR 3MS-say:A all
š-a d= i-werri a ġur-i
FT-NR VC= 3MS-return:A to at-1S
‘I have someone who will go, will say everything, and will come back to me.’

19 *i-žebḏ =id aġerḍa =yaḏin, i-nna ˆs:*
3MS-take.out =VC mouse.EL=DIST:SG 3MS-say:P ˆ3S:IO
‘He took out that mouse, he told it:’

20 “*Zugger, ḵeğği! š-a ˆddu-ḏ ġutˆ emġarṭ*
look:IMP:SG you:MS FT-NR ˆ2:go:A-2S atˆ woman:EA
‘Look, you! You will go to the woman,’

21 *š-a ˆs= t-enn-eḏ a ˆt-weğğeḏ afulust mḥemmṛ-a,*
FT-NR ˆ3S:IO= 2-say:A-2S NR ˆ3FS-prepare:A chicken roasted-FS
‘You will tell her to prepare a roasted chicken.’

22 *iḏ a ˆt-u šš̌laḍa, iḏ a ˆt-nuwwaε ṭṭabla*
and NR ˆ3FS-do:A salad and NR ˆ3FS-prepare:A table
‘And to make a salad, and to prepare the table.’

[23] *ši* =*yaḏin,* *a* *ˆt-nuwwaɛ* *ṭṭabla*
some =DIST:SG NR ˆ3FS-prepare:A table
'Like this, to prepare the table.'

[24] *I-nnaˆs* *aġerḍa* =*yaḏin:* *mm,* *mm*
3MS-say:Pˆ3S:IO mouse.EL=DIST:SG mm mm
That mouse answered: "mm, mm."[770]

[25] *argaz* =*aḏin* *i-ḍelq* =*as* *iḏ* *uġerḍa* =*yaḏin*
man:EL =DIST:SG 3MS-release:P =3S:IO to mouse:EA =DIST:SG
'That man released that mouse.'

[26] *i-ddaaaaa* *aġerḍa* =*yaḏin,* *aġerḍa* =*yaḏin* *i-ntleeeef.*
3MS-go:P mouse:EL=DIST:SG mouse:EL =DIST:SG 3MS-be.lost:P
'That mouse went away, that mouse got lost.'

[27] *qqim-en* *qqim-en* *qqim-en,* *i-nna* *ˆs* *argaz* =*aḏin*
stay:P-3P stay:P-3P stay:P-3P 3MS-say:P ˆ3S:IO man:EL =DIST:SG
lfaṛansi *i-nna* *ˆs* *i* *lmeġribi*
Frenchman 3MS-say:P ˆ3S:IO to Moroccan
'They remained like that (i.e. some time passed). That man told him, the Frenchman told the Moroccan man:'

[28] "*Zugger,* *aġerḍa* =*yaḏin* *i-dda* *i* *d*= *i-werri* *ši."*
look:IMP:SG mouse:EL=DIST:SG 3MS-go:A NEG VC= 3MS-return:P NEG
'Look, that mouse went away and did not come back.'

[29] *I-nna* *ˆs* "*i* *teḵṣuḏ* *ši,* *ṛah* *i-werri* =*d*
3MS-say:P ˆ3S:IO NEG fear:I:IMP:SG NEG PRS 3MS-return:P =VC
iḏ *i-nna* *ˆs* *itˆ* *emġarṭ* *inu* *kulši!"*
and 3MS-say:P ˆ3S:IO to woman:EA of:1S all
'No, why, it did come back, and it did tell my wife everything!'

[30] *i-žebḏ* =*id* *wayeḏ,* *i-nna* *ˆs:*
3MS-take.out:P =VC other:MS 3MS-say:P ˆ3S:IO
'He took out the other one, and told it:'

[770] The speaker does as if she is smelling, with the noise of the air going through her nostrils.

[31] *“Ah-enni-ḏ ši =yaḏin itˆ emġarṭ?”*
2-say:P-2S some =DIST:SG toˆwoman:EL
‘Did you say all that to the woman?’

[32] *I-nna ˆs aġerḍa =yaḏin: “mm, mm”.*
3MS-say:P ˆ3S:IO mouse:EL =DIST:SG mm mm
‘That mouse answered: “mm, mm.”’

[33] *I-nna ˆs, “iwa ṣafi.”*
3MS-say:P ˆ3S:IO so that’s.it
‘He (i.e. the Moroccan) told him: “So, that’s it.”’

[34] *I-nnaˆs: “ooooooooo, aġerḍa =yaḏ ġur-eḵ waɛer, mezyaaaan!”*
3MS-say:P ooooooooo mouse:EL =PROX:SG at-2MS nice:MS good:MS
‘He (i.e. the Frenchman) told him: “Ooooh, that mouse you have is nice, great!”

[35] *“A y= d ˆzzenz-eˆ ṯ ˆid,*
NR 1S:IO= VC ˆ(2:)sell-2Sˆ 3MS:DO ˆVC
a y= d ˆzzenz-eˆ t ˆid?”
NR 1S:IO= VC ˆ(2:)sell-2Sˆ 3MS:DO ˆVC
“Will you sell it to me? Will you sell it to me?”

[36] *I-nna ˆs: “š-a ˆḵ= zzenz-aḥ ˆḥ žˆ žuž n lemlayen.”*
3MS-say:P ˆ3S:IO FT-NRˆ2MS:IO= sell:A-1Sˆ3MS:DO with two of million:dual
‘He told him: “I will sell it to you for two million.”

[37] *I-kka ˆs aġerḍa =yaḏin, i-šebbeṛ žuž lemlayen =yaḏin*[771]
3MS-give:P ˆ3S:IO mouse:EL=DIST:SG 3MS-grab:P two million:dual=DIST:SG
‘He gave him that mouse, he took those two million.’

[38] *I-dda lfaṛansi =yaḏin*
3MS-go:P Frenchman =DIST:SG
‘That Frenchman left.’

[39] *I-gaˆs ši =yaḏin a ˆs= i-ga*
3MS-do:Pˆ3S:IO some =DIST:SG RM ˆ3S:IO= 3MS-do:P
lmeġribi =yaḏin i lfaṛansi
Moroccan =DIST:SG to Frenchman

[771] According to most other speakers, the distal clitic following *lemlayen* should be in the plural form, *(y)iḏin*.

i-ga *=ṯ* *ḥetta* *netta* *i* *wayeḏ*
3MS-do:P =3MS:DO also he to other:MS
'He did the same thing that the Moroccan did to him, to the Frenchman, he in turn did it to another person.'

40 *I-dda,* *i-qqṛ* *=as* *hayda,*
3MS-go:P 3MS-say:I =3S:IO like.this
i-qqṛ *=as* *aġerḍa* *=yaḏin* *hayda*
3MS-say:I =3S:IO mouse:EL =DIST:SG like.this
'He went, he was telling him like this, the mouse was saying like this.'

41 *I-ḍelq* *=aaaaaas* *iḏ* *uġerḍa* *=yaḏin*
3MS-release:P =3S:IO to mouse:EA =DIST:SG
'He released that mouse.'

42 *I-ddaaaa,* *i-rwi.*
3MS-go:P 3MS-flee:P
'It went away, it escaped.'

43 *Argaz* *=yaḏin* *i-dda* *=d* *ġu* *lmeġribi* *=yaḏin*
man:EL =DIST:SG 3MS-go:P =VC at Morrrocan =DIST:SG
'That man came to the Moroccan man.'

44 *I-nna* *ˆs:* *"ga* *ˆs=* *ḍelq-a* *iḏ* *uġerda* *=yaḏin*
3MS-say:P ˆ3S:IO when(ˆRM) ˆ3S:IO=release:P-1S to mouse:EA =DIST:SG
i-dda *i* *d=* *i-werri* *ši."*
3MS-go:P NEG VC= 3MS-return:P NEG
'He told him: "When I released that mouse, it went away and he did not come back.'

45 *I-nna* *ˆs:* *"Ah-kki-ḏ* *=as* *ladrisa?"*
3MS-say:P ˆ3S:IO 2-give:P-2S =3S:IO address
'He told him: "Did you give it the address?"'

46 *I-nna* *ˆs:* *"lla."*
3MS-say:P ˆ3S:IO no
'He told him: "No."'

47 *I-nna* *ˆs:* *"Ah-kki-ḏ* *=as* *lɛunwan* *n* *uḫḫam?"*
3MS-say:P ˆ3S:IO 2-give:P-2S =3S:IO address of house:EA
'He told him: "Did you give it the address of the house?"'

[48] *I-nna ˆs: “lla.”*
3MS-say:P ˆ3S:IO no
‘He told him: “No.”’

[49] *Iwa i-nna ˆs: “a y-yi i-ntleeeef.”*
Si 3MS-say:P ˆ3S:IO NR 3MS-be:A 3MS-be.lost:P
‘So he told him: “It must be lost.”’

[50] *“Sir druḫ a ˆt-šušš-eḏ aḫf-es.”*
go:IMP:SG now NR ˆ2-look.for:A-2S on-3S so that’s.it
‘Go now look for it.’

Ketama Berber: Riddles and Proverbs

The riddles and proverbs presented here were collected in Ketama (Beni Aisi and Beni Hmed) between 2014 and 2017 with multiple speakers, and subsequently verified with other speakers. Some of these proverbs have variants. The variants presented here are the ones that were accepted by most speakers of Beni Hmed dialect.

Riddles

1. *a-kšem* *ɛamṛ-a,* *a-teffġ* =*id* *ḫawiyy-a* (Beni Hmed dialect)
   he-kšem *ɛamṛ-a,* *a-teffġ* =*id* *ḫawiyy-a* (Beni Aisi dialect)
   3FS-enter:P full-FS 3FS-exit:I =VC empty-FS
   'She entered full, it goes out empty.'

Answer: *aɛellaqṯ* 'a tree branch with leaves which is hung on the wall in a stable so that goats eat from it' (it goes out empty because the goats ate the leaves).

2. *a-rga* =*d* *awwerṯ* *nn-es* *a-rsa* *a-kkaṭ* *g* *uzellif* *nn-es*
   3FS-close:P =VC door:EL of-3S 3FS-start:P 3FS-hit:I in head:EA of-3S
   'It closed its door, (and) it started beating its head.'

Answer: *rrḥa* 'mill'.

3. *a-ḏlaq* *iḏaren* *nn-es,* *a-rsa* *a-ttažad* *g* *ṯarwa* *nn-es*
   3FS-release:P legs of-3S 3FS-start:P 3FS-leave:I in children of-3S
   'It stretched its legs and it started giving birth to its children.'

Answer: *aberranṯ* 'marrow'. In this riddle, "legs" refer to branches, because when the marrow spreads its branches, vegetables will appear there.

4. *a-kkaṭ* *ḏi,* *a-kkaṭ* *g* *uḏrar*
   3FS-hit:I here 3FS-hit:I in mountain:EA
   'It hits here, it hits in the mountains.'

Answer: *lemkuḥla* 'gun, rifle', because it can shoot near and far, and/or because when one fires a gun, its sound can be heard far.

5. *a-ḥezzem* *aḥezzam* *nn-es,* *a-kšem* *a* *ˆt-sekker* *šš̈uy* *nn-es*
   3FS-girdle:P girdle:EL of-3S 3FS-enter:P NR ˆ3FS-make:A work of-3S
   'She girdled her girdle (she tied her belt), and entered to do its work.'

Answer: *amzalṯ* 'broom', because the broom is made of branches, that have to be tied together so that one can sweep the floor with it.

6. *s=mˆ* *a* *y-ekka,* *y-uža* *limara*
   from=whereˆ RM 3MS-pass:P 3MS-leave:P trace
   ‘Wherever it passes, it leaves a trace.’

Answer: *ayyum* ‘straw’, because when one brings the straw, some part of it falls and leaves the trace.

7. *ha-m* *ḏi,* *ha-m* *g* *ṯidġin*
   here-3P here here-3P in Tidghin
   ‘Here they are here, here they are in the Tidghin (mountain).’

Answer: *ibeṛṛuqen* ‘eyes’, because you can look near and far.

8. *lferna* *g* *ssiḫa*
   oven in slope
   ‘Oven in the slope’

Answer: *inzarṯ* ‘nose’, because the nose has holes (like a traditional oven), while the face is compared to the slope.

9. *dda-n* *=d* *ḥettaˆ(a)r* *ṯuwwerṯ,* *ḥešm-en* *a* *d=* *ḵešm-en*
   go:P-3P=VC until to door:EA be.shy-3P NR VC= enter:A-3P
   ‘They came until the door, but they are shy to enter.’

Answer: *ṣṣbayeḍ* ‘shoes’, because you do not enter with your shoes inside the house, but leave them outside in front of the door.

10. *agerṯi* *g* *elmerža*
    carpet:EL in pool
    ‘A (type of) carpet in a pool/swamp.’

Answer: *llsan* ‘tongue’, because the tongue is in the mouth, and the mouth is wet.

11. *ngi-ḫ* *ˆ(ḫ),* *i-nga* *ˆy,* *berm-a,*
    push:P-1Sˆ3MS:DO 3MS-push:Pˆ1S:DO turn:P-1S
    u *h=* *ufi-ġ* *šay*
    NEG 3MS= find:P-1S NEG
    ‘I pushed him, he pushed me, I turned back, I didn’t find him.

Answer: *lɛwan* ‘wind’.

Proverbs

1. *imi* *a* *y-ezda-n,* *ḵešm-an=as* *izan*
   mouth:EL RM RF-open:P-RF enter:P-3P=3S:IO flies

‘The mouth which is open, flies enter into it’ (this proverb is used to remind to someone who speaks a lot to close his mouth, so that flies do no enter it).

2. *u* *y-takka* *Ṛebbi* *ibawen* *ġa* *y* *w* *ˆa* *y-ella-n* *šay*
   NEG 3MS-give:I God beans only to PH:MS ˆRM RF-be:P-RF NEG
   ġur-es *(i)ṭaġṣin*
   at-3S teeth

‘God gives beans only to the one who has no teeth.’ (said when God gives something to someone who cannot use it.) Compare the next proverb.

3. *w* *ˆa* *y-ufa-n* *ṭaġsin,* *u* *y-ufa* *š* *n* *ibawen,*
   PH:MSˆRM RF-find:P-RF teeth NEG 3MS-find:P NEG of beans
   i *w* *ˆa* *y-ufa-n* *ibawen,* *u* *y-ufa* *šay* *n* *ṭaġsin*
   and PH:MS ˆRM RF-find:P-RF beans NEG 3MS-find:P NEG of teeTh

‘The one who has (lit. found) teeth, does not find beans,
and the one who has (lit. found) beans, does not find teeth.’

4. *ameḥžur* *i-ttru* *i* *Ṛebbi* *i-terra* *ˆs*
   orphan:EL 3MS-cry:I and God 3MS-add:I ˆ3S:IO

‘An orphan cries and God adds for him (i.e. gives him more trouble).’

Zerqet Berber: 'The Origin of Our Language' (A Story about El Mejdub)

Background information

This text presents a story about El Mejdub that describes the legendary origin of the Senhaja language and tries to explain its diversity.[772] The story was recorded in Zerqet (northwestern Morocco) in 2018 with a 56-year-old male speaker (Hmidu El Ayadi), a speaker of the Bunjel dialect of Zerqet. In this story, it is described how El Mejdub came to distribute a sack of language(s) over the world.[773] As the story goes, by the time El Mejdub arrived to the Senhaja Berber-speaking region of Morocco, he had little language left. So he told the local people to get by with these bits of language, while he would go back to bring them some more. When he returned to the world from which he had brought the language, he realized the language had been already distributed, and it was finished. So he did not go back to the Senhaja-speaking region, and the people are still waiting for him, while speaking a jumbled language. Similar stories can be found among other groups. A similar story is reported among the Tadaksahak speakers (Songhay, Mali).[774] The Avar people (Dagestan, the Caucasus) also have a similar story.[775]

The text

1	*Ɛebdeṛṛeḥman*	*Lmeždub*	*i-wsa*	*=d*	*zgi*	*ši*	*n*	*elɛalam.*
	Abderrahman	Lmejdub	3MS-come:P	=VC	from	some	of	world
	'Abderrahman El Mejdub came from some world.'							

[772] Abderrahman El Mejdub is a historical figure. He was a Moroccan poet and a Sufi figure who lived in 1506–1568 (Prémare 1985 and 1986; Boum 2012). Many proverbs are attributed to him, and he was credited of a lot of stories.

[773] The word *lluġa* 'language' is never pluralized in the story (although *lluġaṭ* 'languages' is possible in Zerqet). In the English translation, in many cases, 'languages' would flow better. Nevertheless, we used the singular 'language' in the translation, to stay close to the original. Apparently, the noun *lluġa* 'language' is conceptualized as a mass noun (and not as a countable noun) in the story. Usually, uncountable entities are easier to 'mix', which explains how the local Berber became so mixed. In the story, language is also seen as something that can be 'completed' or left 'incomplete'.

[774] In the Introduction to her book, Christiansen-Bolli writes, addressing the Tadaksahak people: "God may, as you, the Idaksahak say, have taken all the leftovers of the other languages to give the last one to you, but He made your language a very special one!" (Christiansen-Bolli 2010: 7). Unfortunately, only the punch line is given in this source, and not the rest of the story.

[775] See Gamzatov 1985: 73. The story starts like this: "Allah's messenger was riding a mule and distributing languages from a huge saddlebag to all the peoples on earth". And it ends like this: "When the messenger reached Dagestan, he said: 'No, I will not climb these mountains, especially not in this weather.' So he took his saddlebag, where there were still two handfuls of undistributed languages at the bottom, and emptied them all out on our mountains."

2 *I-wwi* *=d* *ṭašekkaṛṭ* *n* *lluġa* *baš*
3MS-take:P=VC sack:EL of language so.that
a *t=* *i-feṛṛaq* *i* *lɛalam.*
NR 3FS:DO= 3MS-distribute:A in world
'He brought a sack of language to distribute it in the world.'

3 *I-wsa* *=d* *i-tfeṛṛaq.*
3MS-come:P =VC 3MS-distribute:I
'He came distributing.'

4 *Yeḷḷah* *yeḷḷah* *yeḷḷah...* *i-ssara* *ḫ* *Lurup,*
going going going 3MS-travel:P on Europe
i-ssara *ḫ* *Lɛarab,* *i-ssara...* *ḥetta* *y-uwḍ* *=id* *Lmeġrib.*
3MS-travel:P on Arab 3MS-travel:P until 3MS-arrive:P =VC Morocco
'He kept going, going, going... He travelled over Europe, he travelled over the Arab lands, he travelled... till he arrived here to Morocco.'

5 *Amis* *d=* *i-wweḍ* *Lmeġrib,* *i-wsa* *=d* *gi* *Lmeġrib,* *ḥetta*
When VC= 3MS-arrive:P Morocco 3MS-come:P =VC in Morocco until
y-uwḍ *=id* *nnaḥya* *n* *Kṯama,* *Bni* *Seddaṯ,* *Bni* *Bunṣar,* *Targisṭ...*
3MS-arrive:P =VC region of Ketama Bni Seddat Bni Bunsar Targuist
'When he arrived to Morocco, he came to Morocco, till he arrived (here) to the region of Ketama, Bni Seddat, Bni Bunsar, Targuist...'

6 *I-qqim* *=as* *šwišt* *n* *lluġa.*
3MS-stay:P =3S:IO little of language
'Little language was left for him.'

7 *I-qleb* *ṯašekkaṛṯ=nna,* *i-nefḍ* *=asen* *=t* *ḏin.*
3MS-turn:P sack:EL =ANP 3MS-shake:P =3P:IO =3FS:DO there
'He turned that sack over, he shook it out for them there.'

8 *I-nna* *ˆsen* *"Qḏi-ṭ* *s* *elbaraka* *=yya*
3MS-say:P ˆ3P:IO manage-IMP:PL with little =PROX
maɛlama *u* *ttaġul-aġ.*
till NEG return:I-1S
'He said to them, "Manage with this little till I come back.

A *ɛḏu-ġ* *a* *awen* *=d=* *ernu-ġ* *lluġa*
NR go:A-1S NR 2P:IO=VC= add:A-1S language
a *awen=* *kemml-aġ* *lluġa* *n-wen”.*
NR 2P:IO= finish:A-1S language of-2P
I will go to add language for you, to complete for you your language”.’

9 *I-qqim* *i-ɛeddu* *Ɛebdeṛṛeḥman* *Lmeždub* *baš* *aḏ* *y-aġul*
3MS-stay:P 3MS-go:I Abderrahman Lmejdub so.that NR 3MS-return:A
za *lɛalam=nna* *anis* *asen=* *d=* *iwwi* *lluġa.*
to world=ANP whence 3P:IO= VC= 3MS-take:P language
‘Abderrahman El Mejdub was walking to return to that world from which he had brought for them the language.’

10 *Amis* *i-wweḏ* *lɛalam=nna* *baš* *a* *asen=* *d=* *y-awi*
when 3MS-arrive:P world=ANP so.that NR 3P:IO= VC= 3MS-take:A
lluġa, *i-wfa* *lluġa* *ṯ-kemmel.*
language 3MS-find:P language 3FS-finish:P
‘When he arrived to that world to bring the language for them, he found that the language was depleted.’

11 *Lluġa* *ṯ-et-feṛṛaq,* *uḏ* *i-qqim* *š* *lluġa,* *ṣafi*
language 3FS-PASS-distribute:P NEG 3MS-stay:P NEG language that’s.it
‘Language was distributed, there was no language left, that’s it.’

12 *I-qqim* *ḏin,* *u* *d=* *i-wġul* *š* *ġur-sen,*
3MS-stay:P there, NEG VC= 3MS-return:P NEG at-3P
u *ntami* *baqi* *tsagam-en* *a* *asen=* *d=* *y-awi*
and they still wait:I-3P NR 3P:IO= VC= 3MS-take:A
baš *a* *kemml-en* *lluġa* *n-sen.*
so.that NR finish:A-3P language of-3P
‘He stayed there, he didn’t come back to them, and they are still waiting for him to bring them something so that they could complete their language.’

13 *U* *daba* *i-ğğa* *=ṯen* *ssawal-en* *s* *un* *lluġa* *mḫellṭ-a.*
and now 3MS-leave:P=3P:DO speak:I-3P with a language mixed-FS
‘And now he left them speaking a mixed language.’

[14] *Kulši ssawal-en, kul iwwen mi-s i-rraz ḫ wayeḍ.*
all talk:I-3P each one WH-with 3MS-return:I on other:MS
'Everybody is talking, each one with what answers another.'

[15] *U netta baqi u d= i-wġul š ġur-sen,*
and he still NEG VC= 3MS-return:P NEG at-3P
ṣafi, i-qqim ḍin.
that's.it 3MS-stay:P there.
'And he still did not come back to them. That was it, he stayed there.'

Appendix 2. Coordinates of Senhaja place names where the data come from
Berber names in parenthesis in *Italics*. Alternative names after ~

Tribe	Place name Transcription	English	French	Arabic	Location (DD)
Ketama	Bni Ɛisi (*Ayṯ Ɛaḵsi*)	Beni Aisi	Beni Issi	بني عيسي	34.820751, -4.570570
Ketama	Bni Ḥmed (*Ayṯ Ḥmeḏ*)	Beni Hmed	Beni Ahmed	بني احمد	34.822741, -4.594299
Ketama	Ssaḥel	Sahel	Essahel	الساحل	34.818817, -4.630977
Ketama	Lmeẖzen	Lmekhzen	Almakhzene	المخزن	34.816334, -4.621803
Ketama	Talġunt	Talghunt	Talghount	تالغونت	34.774582, -4.594822
Taġzut	Lqelɛa	Lqela	El Kalaa	القلعة	34.791268, -4.524221
Taġzut	Beni H̱lef	Beni Khlef	Beni Yakhlef	بني يخلف	34.783964, -4.525498
Seddat	Aẓila	Azila	Azila	أزيلا	34.863714, -4.538984
Seddat	Tamadda	Tamadda	Tamada	تمادا	34.942509, -4.593770
Seddat	Talarwaq	Talarwaq	Talarouak	تلارواق	34.942467, -4.545450
Seddat	Takerkurt	Takerkurt	Takarkourt	تكركورت	34.911601, -4.561274
Seddat	Tidwin	Tidwin	Tidouine	تدوين	34.929038, -4.531041
Seddat	Issagen	Issaguen	Issaguen	إيساگن	34.917713, -4.570828
Seddat	Asaka	Asaka	Assaka	دوار اساكا	34.895389, -4.517397
Ḥmed	Imugzan	Imugzan	Imougzene	اموگزان	34.753195, -4.461187
Ḥmed	Tafurnut	Tafurnut	Tafournout	تافورنوت	34.751470, -4.400336
Bunsar	Luṭa (Luḏa)	Luta	Louta	لوطا	34.839284, -4.441472
Bunsar	Amɛakṭan	Amaktan	Imaaktene	إمعكطن	34.841535, -4.464689
Bunsar	Tamadit	Tamadit	Tamadit	تامديت	34.830848, -4.478343
Bunsar	Iɛeṭṭaren	Iattaren	Iaataren	إعطارن	34.832644, -4.457316
Bunsar	Ɛayn Ssebaɛ (*Ṯahaya Izem*)	Ayn Seba	Ain Sebaa	عين السبع	34.827327, -4.457021
Bunsar	Zarkat	Zarkat	Zarkat	زركات	34.837662, -4.421513
Bunsar	Ledday	Ledday	Ladday	لداي	34.850815, -4.445961
Zerqet	Aġennuy	Aghennuy	Aghnnoui	أغنوي	34.862079, -4.363888
Zerqet	Wersan	Wersan	Ourssane	أورسان	34.877992, -4.311940
Zerqet	Ɛellal (*Ɛeğğal*)	Allal	Allal	علال	34.888181, -4.296480
Zerqet	Amṭar (*Mmḏar*)	Amtar	Amtar	أمطار	34.855858, -4.361350
Zerqet	Iẖerruden	Ikherruden	Ikharrouden	إخرودن	34.906230, -4.355671
Zerqet	Bunžel	Bunjel	Bounjel	بونجل	34.891021, -4.326119
Zerqet	Belleḥkem	Bellehkem	Belhakem	بلحكم	34.900887, -4.394317
Mezduy	Bni Bužay ~ Ulad Elhani	Beni Bujay	Bni Boujay~ Oulad El Hani	بني بوجاي	34.946993, -4.233864
Mezduy	Tuzelt	Tuzelt	Touzalt	توزالت	34.934919, -4.254305
Mezduy	Iḥusen	Ihusen	Ihoussen	إحوصن	34.938553, -4.282135
Mezduy	Laḥṣen	Lahsen	Lahcen	لحصن	34.884944, -4.277583
Mezduy	Iɛezzuzen	Iazzuzen	Iazzouzen	اعزوزن	34.931567, -4.169069

Appendix 3. Kinship terminology

Kinship terms can belong to any of the three morphological classes:

- Berber-morphology (I), e.g. *ašqiq* (H/B/S) 'brother';
- Arabic-morphology (II), e.g. *lwalid* 'father' (pan-Snh.), alongside *baba*;
- non-affix class (III), e.g. *gma* (K) 'brother'.

For a number of kinship terms, even without the following possessive pronoun (independent or suffix), the 1st person singular possessor is understood, e.g. *gma* (K) 'my brother'.[776] 1S possessive pronoun can still follow such terms (especially for emphasis), e.g. *gma ynu* 'my brother'. Possessive pronoun (independent or suffix) is obligatory when the reference to another person than 1S is made, e.g. *gma nn-es* ~ *gma-s* 'his brother'.[777] Only nouns of this class can figure in the 'his ... of X' construction, where a possessive pronoun (independent or suffix) co-occurs with the Genitive phrase, e.g.

- *gma nn-es n Muḥemmeḏ* (~ *gma-s n Muḥemmeḏ*)
  'Mohammed's brother' (lit. 'his brother of Mohammed').

Other nouns cannot figure in such constructions, e.g.

- *arba n Muḥemmeḏ* (**arba nn-es n Muḥemmeḏ*) 'Mohammed's son'.

In case of Arabic loans, the Arabic 1S possessive suffix *-i* can be petrified (as e.g. in Ketama and Taghzut, where it is part of the word and can be followed by Berber possessive pronouns), or can be detached and substituted by Berber pronominal suffixes (as e.g. in Hmed and Zerqet). Compare the following forms:

K/T	S/H/B/Z	Translation
ɛezzi	ɛziz-i	my paternal uncle
ɛezzi nn-es	ɛziz-es	his/her paternal uncle
ɛezzi nn-es n Ḥmed	ɛziz-es n Ḥmed	Ahmed's paternal uncle

In what follows, the most important kinship terms in Senhaja are presented. The column 'Sfx' indicates whether the term accepts (+) or does not accept (–) Berber possessive suffixes. Possessive suffixes can be used only with a limited set of kinship nouns, and there are dialectal differences. If the term does not accept possessive suffixes, it takes the usual (independent) possessive pronouns. 'BT' (in the 'Notes' column) stands for the 'baby-talk' or child-directed speech (cf. Gutova 2016).

[776] Compare Brugnatelli 2011: 24 on this feature in Berber. Similar phenomena have been detected in Ebla (Brugnatelli 1991).

[777] In the case of this noun, Ketama allows the use of both independent possessive pronouns and suffix pronouns. Most other kinship terms accept only independent possessive pronouns.

Parents and siblings

Term	Variety	Sfx.	Translation	Notes
baba (b̲ab̲a) ➢ babi-	Snh. (T/H) ➢ (S/B)	–	father	Most Snh: no pl. H: pl. *babaṯ*.
yemma∼imma ➢ may-	Snh. ➢ (S/H/B/Z)	– +[778]	mother	no pl. BT *mamma* (K).
lwalid	Snh.	–	father, parent	syn. of *baba*; pl. *lwalidin* (II) ‘parents’
lwalida	Snh.	–	mother	syn. of *yemma∼imma*; pl. *lwalidin* (II) ‘parents’
gma, (u)ḡma	K/S/T	+	brother	pl. *ayṯma* (III) ‘siblings’; cf. *ašqiq* (S/H/B/Z/M)
wiṯma∼wežma	K/S∼T	+	sister	pl. *ayṯma* (III) ‘siblings’
ašqiq	S/H/B/Z/M	–	brother	pl. *išqiqen* (I) ‘siblings’
ṯašqiqṯ	S/H/B/Z/M	–	sister	pl. *ṯišqiqin* (I) ‘sisters’ (∼ *išqiqen* (I) ‘siblings’)

Terms for parents (‘father’ and ‘mother’) can either belong to Class III (*baba* ‘father’ and *yemma∼imma* ‘mother’) or to Class II (*lwalid* ‘father’ and *lwalida* ‘mother’). These terms do not accept suffix pronouns. However, the stem *may-* (S/H/B/Z) ‘mother’ is used in combination with suffix pronouns, e.g. *may-ek̲* ‘your (MS) mother’. Cf. Ketama *imma nnek̲* ‘id.’ The term *baba* ‘father’ does not accept suffix pronouns and does not change its form when followed by possessive pronouns in most Senhaja varieties. In Seddat and Bunsar (Amaktan dialect), *babi* is used when followed by a possessive pronoun (not suffix). There is a difference within Bunsar, e.g. *baba nnek̲* (Luta dialect, as in most Snh.) ‘your (MS) father’ vs. *babiˆnek̲* (Amaktan dialect, as Seddat) ‘id.’.

There is a division within Senhaja when it comes to the terms for siblings. In Ketama and Taghzut, the Berber non-affix nouns are used, *gma* ‘brother’ and *wiṯma* (T *wežma*, K also *wiyṯma, wik̲ma, uyk̲ma,* <**ultma*) ‘sister’. In the rest of Senhaja, Berberized Arabic loans (class I) are used: *ašqiq* ‘brother’ and *ṯašqiqṯ* ‘sister’. In Seddat, all these terms are found. Both *gma* ‘brother’ and *wiṯma* (T *wežma*) ‘sister’ correspond to the same suppletive term, *ayṯma* ‘siblings’ (Ketama also *ayk̲ma, uyṯma*). This term accepts possessive suffixes. When necessary to specify the gender, the descriptive terms ‘male, boys’ or ‘girls, female’ are added, e.g. *ayṯma dkura* ‘male siblings’ (i.e. brothers). The term *ayṯma* also exists in Hmed and Zerqet, but there, it is used in the general sense ‘family’ (alongside other terms). While Hmed and Zerqet have a specific feminine plural form *ṯišqiqin* ‘sisters’, the term *išqiqen* can also be used in the sense ‘siblings’ and does not always refer specifically to brothers.

[778] In these varieties, the term is *may-* when followed by a possessive suffix (outside 1S).

Children

Term	Variety	Sfx.	Translation	Notes
arba~ arb̲a	Snh.~ T/H	–	son, boy, child	pl. T/H *irb̲an*, Snh. *ddrari* ~ *ṯarwa*
(ṯ)arbaṯ~ ṯarb̲aṯ	Snh.~ T/H	–	daughter, girl	pl. K/H/B *(ṯ)irbaṯin*, H/B *tyumba*, T *ṯižumba*, Z *ṯibliġin* (I)
aḫčі(w)	K	–	son, boy, child	syn. of *arba*; BT *bezzi*; pl. *ddrari* ~ *iḫčiwen* ~ *yumba*
aḫči(w)ṯ	K	–	daughter, girl	pl. *iḫčiwin, iḫčiṯin, iḫčiṯen, iḫčiwṯin*
lɛiyyel	S	–	son, boy, child	pl. *ddrari*
ṯaɛiyyalṯ	S	–	daughter, girl	pl. *ṯiɛwilin*

The terms for children ('son', 'daughter') are not exclusively used as kinship terms, but have a wider range of meanings ('boy', 'girl') when not followed by a possessive pronoun. These terms belong to the Berber-morphology class, except for the Arabic borrowing *lɛiyyel* (Seddat) 'son, boy' that is class II. The feminine counterpart, *ṯaɛiyyalṯ*, is Berberized and belongs to class I.

The terms for children often have suppletive plurals that may belong to another class. Thus, *arba* 'boy, son' corresponds not only to *irb̲an* (T/H), but also to *ddrari* (pan-Snh.) and to *ṯarwa*. Its feminine counterpart, *(ṯ)arbaṯ* 'girl, daughter' corresponds not only to *(ṯ)irbaṯin* (K/H/B), but also to *ṯyumba* (H/B), *ṯižumba* (T), and *ṯibliġin* (Z). Ketama *aḫčiw* 'boy, son' (more widely used than *arba* in Ketama) has a regular plural *iḫčiwen*, but also corresponds to *ddrari* and *yumba* (~*iwemba, iwenba*). While *yumba* 'boys' clearly corresponds to the feminine *tyumba* (T *ṯižumba*) 'girls', these terms are not used in the same varieties.

Grandparents and grandchildren

Term	Variety	Sfx.	Translation	Notes
židi~žeddi	K/Z~T	–	grandfather	BT *žiži* (K). pl. (K) *židiwaṯ*
žedd(-i)	S/H/B/Z	+	grandfather	pl. *žd̲ad(i), (le)žd̲ud*
žida	K/Z	–	grandmother	BT (K) *žiža*. pl. (Z) *židaṯ*
ḥenna	S/B/Z	–	grandmother	pl. (Z) *ḥennaṯ*
nanna	T/H/B(Luta)	–	grandmother	T pl. *nannaṯ*
leḥfeḏ~leḥfiṯ	K (~H/B/Z)	–	grandson	pl. *leḥfayeḏ* ~ *leḥfayeṯ*
leḥfiḏa~leḥfiṯa	K	–	granddaughter	pl. *leḥfayeḏ, leḥfayeṯ* (=MP)
ayyaw		–	grandson	pl. *ayyawen* (S/T/H) ~ *iyyawen* (H)
ṯayyawṯ~ ṯayyawk̲ṯ	S/H/B~ T/H/Z	–	granddaughter	pl. *ṯayyawin* (S/H/Z), *ṯiyyawin* (H). T pl. *ayyawen* (=MP)

The terms for grandparents and grandchildren are mostly borrowed from Arabic (although they usually lack the article), except for the term *ayyaw* ‘grandson’ used in parts of Senhaja. In Ketama, the Arabic loan *leḥfeḍ (~leḥfiḍ~leḥfiṭ)* is used instead. Alternatively, periphrasis can be used: *aḫčiw n uḫčiw inu ~ arba n urbaˆynu* ‘son of my son’, *arbaṭ n urba inu* ‘daughter of my son’, etc. In other varieties, where the term *ayyaw* is found, periphrasis is also possible, e.g. *arba n urbaˆynu* (Z) ‘son of my son’.

Uncles and aunts

Term	Variety	Sfx.	Translation	Notes
ɛezzi	K/T	–	paternal uncle	no pl. BT *ɛzizi* (K)
ɛziz(-i)	S/H/B/Z	+	paternal uncle	pl. H *ayṭɛziz(-i),* S *suɛziz(-i)*
ɛetti	K/T	–	paternal aunt	pl. T *ɛettiyaṭ*
ɛett(-i)	S/H/B	+	paternal aunt	pl. S *su(ṭ)ɛett(-i)*, H *ɛtatat(-i)*. S also *yayya* (pl. *su(ṭ)yayya*)
ɛent(-i)	Z	+	paternal aunt	pl. Z ɛwant(-i)
ḫayyi ḫaži	K T	–	maternal uncle	BT *ɛazizi* (K), pl. K *ḫwayyi* pl. T *ḫwaži*
ḫay(y)(-i)	S/H/B	+	maternal uncle	pl. *ḫway(-i)*
ḫal(-i)	Z	+	maternal uncle	pl. *ḫwal(-i)*
ḫatti (ḫaṭi)	K/T	–	maternal aunt	pl. T *ḫattiyaṭ*
ḫatt(-i)	S/H/Z	+	maternal aunt	pl. S *suḫatt(-i)*,[779] Z *ḫwalt(-i), ḫwatt(-i)*, H *ḫwatat(-i)*

The terms for uncles and aunts are borrowed from Arabic. Some of these terms have extended meanings. Thus, the terms *ɛezzi ~ ɛziz(-i)* means not only ‘paternal uncle’, but also ‘brother of paternal grandfather’ and, (in Seddat) more generally, some man from one’s father’s family. The term *ḫal(-i)/ḫayy(-i)* (and variants) refers not only to a maternal uncle and mother’s maternal uncle (or generally, some man from one’s mother’s family), but also to a husband’s father (cf. below). The term *ḫatt-i/ḫatti* may refer to: 1) maternal aunt (mother’s sister), 2) mother’s maternal aunt, and 3) maternal uncle’s wife. There may be dialectal differences in the range of meanings. Thus, the term *ɛett(-i)* in Seddat may refer to: paternal aunt, wife of mother’s brother, wife of father’s brother, and generally, some lady older than the speaker. In Taghzut, the term *ɛetti* is more restricted, and refers only to one’s paternal aunt. The same term may refer to different things in different varieties. Thus, in Seddat, the term *yayya* is a synonym of *ɛett(-i)* (i.e. ‘paternal aunt’). In Taghzut, it is used to refer to some woman you know (‘auntie’), alongside *titti*.

[779] Seddat also *suṯḫatt(-i), suyṯḫatt(-i)*.

Cousins and nephews

There are no designated terms for ‘cousins’ in Senhaja. Instead, periphrasis is used, e.g.

Ketama	Taghzut	Seddat	Zerqet	Translation
				MS
arba n ɛezzi	arḇa n ɛezzi	lɛiyyel n ɛezziz-i	arba n ɛezziz-i	paternal uncle’s son
arba n ɛetti	arḇa n ɛetti	lɛiyyel n ɛett-i	arba n ɛett-i	paternal aunt’s son
arba n ḫayyi	arḇa n ḫaži	lɛiyyel n ḫayy-i	arba n ḫal-i	maternal uncle’s son
arba n ḫatti	arḇa n ḫatti	lɛiyyel n ḫatt-i	arba n ḫatt-i	maternal aunt’s son
				FS
aḫčiṯ/arbaṯ n ɛezzi	arḇaṯ n ɛezzi	ṯaɛiyyalṯ/ṯarbaṯ n ɛezziz-i	ṯarḇaṯ n ɛezziz-i	paternal uncle’s daughter (etc.)
				M/common pl.
ddrari/ iḫčiwen n ɛezzi	ddrari n ɛezzi	ddrari n ɛezziz-i	ddrari n ɛezziz-i	paternal uncle’s sons/ children (etc.)
				FP
iḫčiṯin n ɛezzi	ṯižumba n ɛezzi	ṯiɛawilin n ɛezziz-i	ṯiḇliġin n ɛeziz-i	paternal uncle’s daughters (etc.)

Similarly, there are no simple terms for nephews. Description is used instead, e.g.

Ketama	Taghzut	Seddat	Zerqet	Translation
aḫči(w) n egma	arḇa n egma	lɛiyyel n egma	arba n ušqiq	brother’s son
aḫčiṯ n wiyṯma	arḇaṯ n wezma	ṯaɛiyyalṯ n wiṯma	ṯarḇaṯ n tešqiqṯ	sister’s daughter
ddrari n ayṯma	ddrari n ayṯma	ddrari n ayṯma	ddrari n išqiqen	sibling’s sons
iḫčiṯin n ayṯma	ṯižumba n ayṯma	ṯiɛawilin n ayṯma	ṯiḇliġin n išqiqen	sibling’s daughters

Spouses and their relatives

The terms for spouses (‘husband’, ‘wife’) have more general senses (‘man’, ‘woman’) when not followed by a possessive pronoun. None of these terms accepts a possessive suffix pronoun.

Term	Variety	Translation	Notes
argaz	K/S/T	husband; man	
aryaz	H/B/Z	husband; man	
(ṯ)amġarṯ	K/S/H/B/Z	wife; woman	
(ṯ)ameṭṭuṯ	T	wife; woman	
ṯaḵna	pan-Snh.	co-wife	pl. *ṯaḵniwin* (K/T/H/Z), *ṯiḵniwin* (K/S/T/H)

amġar	pan-Snh.	husband's father	K/T/S
(ṯ)amġarṯ	K/S/T	husband's mother	
alus, ayus, ažus, iwes[780]	Z, K/H/B, T, S	husband's brother	pl. T *ižusen*, K/S *iwsan*
ṯalusṯ, (ṯ)ayust, ažusṯ, ṯiwesṯ[781]	Z, K/H/B, T, S	husband's sister	pl. K/H *ṯayus(ṯ)in~ṯiyus(ṯ)in*, T *(ṯ)ižusṯin*, S *ṯiwsaṯin*
aḏeggʷal, aḏeggʷay, aḏeggay, aḏeggaž	Z, S/H/B, K, T	wife's father/ brother	Also *nnsib*
ṯaḏeggʷalṯ, ṯaḏeggʷač, (ṯ)aḏeggalṯ	Z/H, S, K/T	wife's mother/ sister	Also *nnsiba, sslifa*
nnsib, assif	K/T/B/Z, S	wife's father/ brother	pl. *nsayeb*, pl. S *issifen*
nnsiba, sslifa, ṯassifṯ	K/T/B/Z, K/T/B, S	wife's sister	pl. *nnsibaṯ, sslayef, ṯissifin*

Sometimes, a Berber term may be used alongside an Arabic loan, e.g. (Z) *aḏeggʷal* (and variants) alongside *nnsib* 'wife's father/brother'. The younger generation is not always familiar with these terms. In many cases, periphrasis can be used, e.g. (K) *uytma-s n (t)emġart inu* 'wife's sister' (alongside *nnsiba~sslifa*).

Terms for 'family'

The following terms are used in Senhaja to refer to the family. They belong to Class II, except for *ayṯma* mentioned above, and do not accept possessive suffixes.

Term	**Variety**	**Translation**
ddeḫla~ddeḫya	Z~K/S/H/B	nuclear family
lɛa'ila	pan-Snh.	extended family
ayṯma	H/Z	family (in K/S/T 'siblings')

In addition, the term *aḫyam* 'house' (and its variant) can also be used in the sense 'household, family'.

Examples of usage

Bellow follow some examples including kinship terms.

- *šḥal ġur-eḵ n ayṯma-ḵ?* (K) ~ *šḥal ġur-eḵ n išqiqen?* (Z/M)
  'How many siblings (brothers and sisters) do you (2MS) have?'

[780] Also periphrasis, (K) *ugma-s n urgaz inu*, lit. 'brother of my husband'.

[781] Also periphrasis, (K) *uytma-s n urgaz inu*, lit. 'sister of my husband'.

- *ġur-i ḫemsa n ayṯma: tlaṭa n iḫčiwen i žuž n ṯiḫčiwin* (K)
  ‘I have five siblings: three brothers (boys) and two sisters (girls).’
- *ġur-i ḫemsa n išqiqen ḏ un tešqiqṯ* (Z)
  ‘I have five brothers and one sister’.
- *ka/waš ġur-eḵ iḫčiwen/ddrari?* (K) ~ *ka/waš ġur-eḵ ddrari?* (Z)
  ‘Do you have children?’
- *šḥal ġur-eḵ n iḫčiwen?* (K) ~ *šḥal ġur-eḵ n eddrari?* (Z)
  ‘How many children do you have?’
- *lla, (nekkin) (u) ġur-i šay n iḫčiwen* (K) ~ *lla, u ġuri š n eddrari* (Z)
  ‘No, I don’t have children.’
- *ah, ġur-i tlaṭa n iḫčiwen: žuž n iḫčiṯen iḏ uḫči wahḍa* (K) ~
  wah, ġur-i tlaṭa n eddrari: žuž n tibliġin ḏ un urḇa (Z)
  ‘Yes, I have three children: two girls and one boy.’
- *ah, ġur-i ḫemsa n iḫčiwen: žuž n iḫčiṯen iḏ tlaṭa n yumba (dḵura)* (K) ~
  wah, ġuri ḫemsa n eddrari: žuž n tibliġin ḏ tlaṭa n eddrari (Z)
  ‘Yes, I have five children: two girls and three boys.’
- *ġur-i arbɛa n eddrari: zuž n eddrari iḏ žuž n ṯɛawilin* (S) ~
  ġur-i arbɛa n eddrari: žuž n irḇan i žuž n ižumba (T)
  ‘I have four children: two sons and two daughters.’
- *šḥal aqa-wen i lɛa’ila?* (Z)
  ‘How many are you (PL) in the family?’
- *wida ha lwalidin inu* (Z)
  ‘These are my parents.’

Appendix 4. Color terms in Senhaja

Color terms in Senhaja may be expressed by different parts of speech: adjectives, nouns, and verbs. Adjectives and nouns can be of Arabic or Berber origin. Thus, the major types of color terms in Senhaja are:

1) adjectives: a) of Arabic origin, e.g. *kḥel* 'black' (H); b) of Berber origin, e.g. *melluy* 'white' (H);
2) nouns: a) nominalized Arabic adjectives, e.g. *akeḥḥul* 'black one' (H); b) nouns of Berber origin, e.g. *amelluy* 'white one' (H). In Zerqet, borrowed Arabic color terms are usually not nominalized.
3) verbs, e.g. *mžul/meğğul* (Z) 'to be white'.

In most Senhaja varieties, Arabic color terms coexist with the native ones, and may be gradually replacing them, as they are mostly used by the young generation (e.g. in Bunsar). In Ketama, native Berber color terms are not used. Ketama and Hmed varieties allows for internal diminutives of color terms. These can be derived both on the basis of adjectives or nominals.

The following table presents the color terms in Hmed. This variety presents the largest diversity of color terms, including both adjectives (Arabic-morphology and Berber-morphology) and nouns, as well as diminutives.

Arabic adjectives (Hmed)

MS	FS	PL	Translation
kḥel	keḥla	kuḥel	black
byeḏ	beyḏa	buyeḏ	white
ḥmeṛ	ḥemṛa	ḥumeṛ	red
zṛaq /zṛeq/	zeṛqa	zuṛaq /zuṛeq/	blue
ḫḏer	ḫeḏra	ḫuḏeṛ	green
ṣfeṛ	ṣefṛa	ṣufeṛ	yellow
ṛamadi	ṛamadiya	ṛamadiyin	grey
ẓɛeṛ	ẓeɛṛa	ẓuɛeṛ	blond
rrubiyu	rrubiyuwwa	rrubyuwwaṭ	blond (<Sp.)

One Berber adjective (Hmed):

MS	FS	PL	Translation
melluy	melluyeṭ	melluyen	white

Nominals (these include FP forms):

MS	FS	MP	FP	Translation
akeḥḥul	ṯakeḥḥulṯ	ikeḥḥulen	ṯikeḥḥulin	black.one
amelluy	ṯamelluyṯ	imelluyen	ṯimelluyin	white.one
abeyyuḏ	ṯabeyyuṯ	ibeyyuḏen	ṯibeyyuṯin	white.one
aḥemmur	ṯaḥemmurṯ	iḥemmuren	ṯiḥemmurin	red.one
azizaw	ṯazizawṯ	izizawen	ṯizizaw(ḵ)in	blue/green
azerruq	ṯazerruqṯ	izerruqen	ṯizerruqin	blue.one
aṣeffar	ṯaṣeffarṯ	iṣeffaren	ṯiṣeffarin	yellow.one
aẓeɛṛaw	ṯaẓeɛṛawḵṯ	iẓeɛṛawen	ṯiẓeɛṛaw(ḵ)in	blond.one

Nominalized color terms in Ketama and Hmed

MS (K)	MS (K/H)	FS	MP	FP (H)	<Adj	Transl.
akeḥḥal~ akeḥlaw	akeḥḥul (H)	akeḥḥalṯ (K) ṯakeḥḥulṯ (H)	ikeḥḥalen (K) ikeḥḥulen (H)	ṯikeḥḥulin	kḥel	black
abiḏaw	abiyyuḏ	(ṯ)abiyyuṯ	ibiyyuḏen	ṯibiyyuṯin	byeḏ	white
aḥemraw	aḥemmur	(ṯ)aḥemmurṯ	iḥemmuren	ṯiḥemmurin	ḥmeṛ	red
azerqaw	azerruq	(ṯ)azerruqṯ	izerruqen	ṯizerruqin	zraq	blue
aṣefraw	aṣeffar	(ṯ)aṣeffarṯ	iṣeffaren	ṯiṣeffarin	ṣfeṛ	yellow
aẓeɛṛaw	---	(ṯ)aẓeɛṛaw(ḵ)ṯ	iẓeɛṛawen	ṯiẓeɛṛaw(ḵ)in	ẓɛeṛ	blond
aḥeḏraw	aḥḏaṛ	----				green

Diminutives of Arabic adjectives

MS	FS	PL	Translation
kḥiḥel	kḥiḥla	kḥiḥlin	black
ḥmimeṛ	ḥmimṛa	ḥmimṛin	red
zrireq	zrirqa	zrirqin	blue
ṣfifeṛ	ṣfifṛa	ṣfifṛin	yellow

Diminutives of nominals

MS	FS	MP	FP	Translation
akḥiḥel	ṯakḥiḥelṯ	ikḥiḥlen	ṯikḥiḥlin	black one
aḥmimeṛ	ṯaḥmimeṛṯ	iḥmimṛen	ṯiḥmimeṛin	red one
azrireq	ṯazrireqṯ	izrirqen	ṯizrirqin	blue one
aṣfifeṛ	ṯaṣfifeṛṯ	iṣfifṛen	ṯiṣfifṛin	yellow one

Appendix 5. PNG marking sets and examples

In the schemes below, "-V" represents V-final stems; "V-" represents V-initial stems. Aorist is illustrated with the irrealis marker *a(d̲)* that has influence on the PNG marking. While the irrealis marker is not part of the PNG marking, it is included in the paradigms and examples as it has influence on the realization of the PNG affixes. The same is true for the negation markers. Negation is normally bipartite in Senhaja, although the preverbal negator *u* can be omitted in Ketama in specific contexts. The following table presents the PNG marking in the context of Aorist following the irrealis *a(d̲)*.

PNG marking in the Aorist following the irrealis *a(d̲)*

	ad̲	**pfx.**	**stem**	**sfx**	**Variety**
1S	a			-a	K/T (outside Lqela)
	a			-aġ	most Snh. (except K and T)
	ad̲			-aġ	parts of Z
	a(d̲)		(V)-V	-ġ	pan-Snh.
2S	a	t-		-d̲	pan-Snh.
3MS	a	y-			K
	a	y-	V-		K
	ad̲	Ø			T/S/H
	ad̲	i-			Z
	a(d̲	i-)			B
	ad̲	y-	V-		T/S/B/H
3FS	a	t-			pan-Snh.
1P	a	n-			pan-Snh.
2P	a	t-		-m	pan-Snh.
2FP	a	t-		-mt	Z/M
3P	a			-n	pan-Snh.
	ad̲			-n	parts of Z
	ad̲		V-	-n	pan-Snh.
3FP	a(d̲)			-nt	Z/M

The following table presents some examples of verbs in the context of Aorist with the irrealis *a(d̲)*.

Examples of verbs in the Aorist following the irrealis *a(d̲)*

	Examples				Translation	Variety
1S	a		k̲erz	-a	I will plow	K/T
	a		k̲erz	-aġ	I will plow	most Snh.
	ad̲		k̲erz	-aġ	I will plow	Z
	a		ddu	-ġ	I will go	K
	ad̲		aẓum	-a(ġ)	I will fast	most Snh.
	ad̲		aẓum	-a	I will fast	K
	ad̲		asi	-ġ	I will lift	pan-Snh.
2S	a	t-	k̲erz	-ed̲	You will plow	pan-Snh.
3MS	a	y-	ek̲rez		He will plow	K
	a	y-	asi		He will lift	K
	a	d̲-	ek̲rez		He will plow	T/S/H
	a(d̲	i-)	k̲rez		He will plow	B
	ad̲	i-	k̲rez		He will plow	Z
	ad̲	y-	asi		He will lift	T/S/B/H
3FS	a	t-	ek̲rez		She will plow	pan-Snh.
1P	a	n-	ek̲rez		We will plow	pan-Snh.
2P	a	t-	k̲erz	-em	You will plow	pan-Snh.
2FP	a	t-	k̲erzm	-emt	You will plow	Z/M
3P	a		k̲erz	-en	They will plow	Snh.
	a(d̲)		k̲erz	-en	They will plow	Z
3P	ad̲		asi	-n	They will lift	Snh.
3FP	a(d̲)		k̲erz	-en(t)	They will plow	Z/M
	ad̲		asi	-n(t)	They will lift	Z/M

The following table presents the PNG marking used in the context of Perfective and Imperfective (affirmative), without the preverbal markers.

PNG marking in the Perfective/Imperfective (positive)

				Variety
1S			-a	K/T
			-aġ	most Snh.
		-V	-ġ	pan-Snh.
2S	t̲-		-d̲	most Snh.
	h-~a-~ah-		-d̲	K/T
3MS	i-			pan-Snh.
	y-	V-		T/B/H/Z
3FS	t̲-			most Snh.
	h-~a-~ah-			K/T
1P	n-			pan-Snh.
2P	t̲-		-m	most Snh.
2P	h-~a-~ah-		-m	K/T
2FP	t̲-		-mt	Z/M
3P			-n	pan-Snh.
3FP			-nt	Z/M

The following table presents some examples of verbs in the context of Perfective.

Examples of verbs in the Perfective

	Examples			**Translation**	**Variety**
1S		k̲erz	-a	I plowed	K/T
		k̲erz	-aġ	I plowed	most Snh.
		asi	-ġ	I lifted	pan-Snh.
2S	t̲-	k̲erz	-ed̲	You plowed	most Snh.
	(a)h-/a-	k̲erz	-ed̲	You plowed	K/T
3MS	i-	k̲rez		He plowed	pan-Snh.
	y-	usi		He lifted	T/H/Z
	i-	wsi		He lifted	K/T/S/Z
3FS	t̲-	ek̲rez		She plowed	most Snh.
	(a)h-/a-	k̲rez		She plowed	K/T
1P	n-	ek̲rez		We plowed	pan-Snh.
2P	t̲-	k̲erz	-em	You plowed	most Snh.
2P	(a)h-/a-	k̲erz	-em	You plowed	K/T
2FP	t̲-	k̲erz	-emt	You plowed	Z/M
3P		k̲erz	-en	They plowed	pan-Snh.
3FP		k̲erz	-ent	They plowed	Z/M

Finally, the following table presents the PNG marking following a preverbal negator.[782] In Taghzut, Seddat, and Hmed, the sets are identical in the affirmative forms, but not in the negative ones. The difference is found in the 3MS verb forms: the 3MS marker is Ø or *d̲* following the negators *u(d̲)* or *ur* in the negation of the Perfective, but the marker is *y-* following the negator *ula* in the negation of the Imperfective. If the negator *u(d̲)* is used in the Imperfective (as e.g. in Bunsar, and as a second possibility in Seddat), there is no difference in the 3MS marking. The use of different 3MS subject marker is thus linked to the use of different negators (which are in turn linked to the verb aspect), and not to the verb aspect directly.

PNG marking in the PERF/IPF.NEG following a negator

	Scheme					**Var.**
1S	u(d̲)		(V-)	-aġ	š	pan-Snh.
	u(d̲)		(V)-V	-ġ	š	pan-Snh.
2S	u	t̲-		-d̲	š	most Snh.
	u	h-		-d̲	š	K/T
3MS	u	y-			š	K/B
	Ø	i-			š	K
	ud̲	Ø			š	T/S/H
	u(d̲	i-)			š	B
	ur	Ø			š	S
	ud̲	(y)-	V-		š	T
	ud̲	y-	V-		š	H
	ud̲	i-	V-		š	B/Z
(IPF)	ula	y-			š	T/S/H
3FS	u	t̲-			š	most Snh.
	u	h-			š	K/T
1P	u	n-			š	pan-Snh.
2P	u	t̲-		-m	š	most Snh.
	u	h-		-m	š	K, T
2FP	u	t-		-mt	š	Z/M
3P	u(d̲)		(V-)	-n	š	pan-Snh.
	ur			-n	š	S
3FP	u(d̲)		(V-)	-nt	š	Z/M

[782] The preverbal negator depends on the aspect and the variety; *u(d̲)* and *ur* are typically found with the Perfective in Seddat, while *ula* is typically found with the Imperfective in Taghzut, Seddat, and Hmed.

	Examples					Translation	Variety
1S	u		k̲erz	-aġ	š	I did not plow	pan-Snh.
	ud̲		uẓum	-aġ	š	I did not fast	pan-Snh.
	ud̲		usi	-ġ	š	I did not lift	pan-Snh.
2S	u	t̲-	usi	-d̲	š	You did not lift	most Snh.
	u	h-	usi	-d̲	š	You did not lift	K/T
3MS	u	y-	usi		š	He did not lift	K/B
	Ø	i-	wsi		š	He did not lift	K
	u	d̲-	ek̲rez		š	He did not plow	T/S/H
	u(d̲	i-)	k̲rez		š	He did not plow	B
	ur	Ø	ek̲rez		š	He did not plow	S
	ud̲	(y)-	usi		š	He did not lift	T
	ud̲	y-	usi		š	He did not lift	H
	ud̲	i-	wsi		š	He did not lift	B/Z
(IPF)	ula	y-	tasi		š	He does not lift	T/S/H
3FS	u	t̲-	ek̲rez		š	She did not plow	most Snh.
	u	h-	ek̲rez		š	She did not plow	K/T
1P	u	n-	ekrez		š	We did not plow	pan-Snh.
2P	u	t̲-	k̲erz	-em	š	You did not plow	most Snh.
	u	h-	k̲erz	-em	š	You did not plow	K/T
2FP	u	t-	k̲erz	-emt	š	You did not plow	Z/M
3P	u		k̲erz	-en	š	They did not plow	pan-Snh.
	ud̲		usi	-n	š	They did not lift	pan-Snh.
	ur		usi	-n	š	They did not lift	S
3FP	u		k̲erz	-en	š	They did not plow	Z/M
	ud̲		usi	-nt	š	They did not lift	Z/M

Appendix 6. Senhaja Labile Verbs

Verb	Transl. (tr.)	Transl. (intr.)	Variety
ari	write	be written	H
bellaɛ /e/	close	be closed	H/Z
beqqeḏ	shoe	be shod	H/Z
bnu	build	be built	H/Z
brem	roll	be rolled	K
ḏkʷar~ḏkur	fill	be filled	Z
ḏyaq	release	be released	H
ɛellaq /e/	hang	be hung	Z
ɛewwež	bend	bend	Z
fekk	untie	tie	H/Z
ferreḵ	clean	be cleaned	Z
ffer	hide	be hidden	Z
fiyyel	clean	be cleaned	Z
fraɛ /e/	hurt	be hurt	Z
fren	clean plants	be cleaned	Z
fsaḫ /e/	untie	be untied	H/Z
fṭaḥ /e/	open	be opened	pan-Snh.
ġeṭṭes	dip	be dipped	Z
ġeṭṭi	cover	be covered	H/Z
glaṣi/a	freeze	be frozen	Z
ġli~ġlu	boil	be boiled	H/Z
ġmes	cover	be covered	H/Z
ġmes	cover	be covered	pan-Snh.
ġmes	cover	be covered	H/Z
ġres	cut	be cut	H/Z
gzem	hurt	be hurt	Z
ḥelles	saddle	be saddled	H/Z
ḫemmel	clean	be cleaned	Z
ḫlaq, ḫyaq /e/	create	be created	Z, H
ḥṛaq /e/	burn	be burnt	pan-Snh.
ḫwi	empty	be empty	H/Z
kkebb	pour	be poured	Z
ḵrez	plow	be plowed	H/Z
lqeḏ	pluck	be plucked	H/Z

luwwi	spin	be spinned	K/Z
luwwi/a	spin	be spinned	Z
neqqes	descrease	descrease	K/H/Z
neqqi	clean	be cleaned	Z
nfeṭ	clean	be cleaned	Z
nġeḏ	thresh	be threshed	Z
ngi	push	be pushed	K
qḏi	finish	be finished	Z
qeṛṛeb	bring close	be brought close	K
qeṣṣeṣ	cut	be cut	Z
qeṭṭaɛ	cut	be cut	Z
qiyyed	note	be noted	H
qleb, qyeḇ	turn	be turned	K/T/Z, H
qqen	tie	be tied	H/Z
qreḏ	break	be broken	Z
ṛeqqaɛ /e/	sew	be sewed	H
ṛeqqaɛ /e/	sew	be sewed	H
rgi	close	be closed	K
riyyeš	pluck	be plucked	Z
rnu (H/Z), rru (H/K)	increase	increase	K/H/Z
ṛẓem	release	be released	Z
sbaġ /e/	paint	be painted	H/Z
šedd	tie	be tied	Z
seḵsef	clean	be cleaned	Z
šellel	wash	be washed	Z
sežžel	record	be recorded	H
siyyes	boil	be boiled	H
ssens	host	be hosted	Z
sserweṭ	thresh	be threshed	Z (H)
syes	boil	be boiled	Z
zdi	open	be opened	K
zdi~zdu	open	be opened	K~T
zenneḏ	burn	be burnt	Z
zuzzer	winnow	be winnowed	Z (H)
zwi	shake	be shaken	Z
ẓẓu	plant	be planted	H/Z

Examples of verbs that are labile in Zerqet but not in Ketama

Verb	Sense (trans.)	Var.	Sense (intrans.)	Var.
bellaɛ /e/	close	K/Z	be closed	H/Z
bnu	build	K/H/Z	be built	H/Z
d̲kʷar	fill	H	be full	Z
ɛelleq	hang	K/H/Z	be hung	Z
ɛewwež	bend	K/Z	be bent	Z
fekk	untie	K/H/Z	be untied	H/Z
ferreḵ	clean	K/Z	be cleaned	Z
feṣṣel	design	K/Z	be designed	Z (H)
fiyyel	clean	K/Z	be cleaned	Z
fraɛ /e/	hurt	K/H/Z	be hurt	H/Z
ġeṭṭes	dip	K/Z	be dipped	Z
ġeṭṭi	cover	K/H/Z	be covered	H/Z
ġlaq /e/	cover	K/Z	be covered	H/Z
ġmes	cover	K/H/Z	be covered	H/Z
ġmes	cover	K/H/Z	be covered	H/Z
gzem	hurt	K/H/Z	be hurt	Z
ḫemmel (Z), ḫemmi (K)	clean	K/Z	be cleaned	Z
ḫlaq, ḫyaq /e/	create	K/Z, H	be created	Z, H
ḥraq /e/	burn	K/H/Z	be burnt	H/Z
ḫwi	empty	K/H/Z	be emptied	H/Z
kkebb	pour	K/Z	be poured	Z
k̲rez	plow	K/H/Z	be plowed	H/Z
lqeḏ	pluck, gather	K/H/Z	be plucked	H/Z
neqqi/a	clean	K/Z	be cleaned	Z
nfeṭ (Z), nfeḏ (K)	clean	K/Z	be cleaned	Z
nġeḏ	thresh	K/Z	be threshed	Z
qeṣṣeṣ	cut	K/H/Z	be cut	Z
qeṭṭaɛ	cut	K/H/Z	be cut	Z
qleb (K/Z), qyeb (H)	turn	K/H/Z	bu turned	Z, H
qqen	tie	K/H/Z	be tied	H/Z
qreḏ	break	K/Z	be broken	Z
ṛeqqaɛ /e/	sew	K/H/Z	be sewed	H
riyyeš	pluck	K/Z	be plucked	Z

sbaġ /e/	paint	K/H/Z	be painted	H/Z
seḵsef	clean	K/Z	be cleaned	Z
šellel (Z), šelli (K/H)	wash	K/H/Z	be washed	Z
siyyes	boil (trans.)	K/H	boil (intrans.)	H
ssens	host, let sleep	K/Z	spend the night	Z
ṭlaq, ḏyaq /e/	release	K, H	be released	H
zenneḏ	burn	K/Z	be burnt	Z
ẓṛaɛ /e/	sow	K/H/Z	be sown	H/Z
zuzzer	winnow	Z/H	be winnowed	H/Z
zwi	shake	K/Z	be shaken	Z
ẓẓu	plant	K/H/Z	be planted	H/Z

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Senhaja Berber Varieties: Phonology, Morphology, and Morphosyntax

This thesis presents a polylectal study of Senhaja Berber varieties (Northwestern Morocco), underlining the differences and commonalities between them. The thesis is based on fieldwork data, issuing from seven varieties. Three varieties – Ketama (West), Hmed (Center), and Zerqet (East) – are focused on to cover Senhaja most fully and accurately. The studied varieties are important for the understanding of the linguistic variation and history of the region. Senhaja shows some similarities to the Ghomara language (spoken to its West), and to Tarifiyt (spoken to its East), but there are also substantial differences. Senhaja and Ghomara might share a common origin.

The thesis covers the major domains of the language (phonology, morphology, morphosyntax) and pays attention to the contact linguistics phenomena. Senhaja has been heavily influenced by Arabic in its lexicon, morphology, and syntax. Arabic patterns are found, for example, in verb derivation and derivation of diminutives. In Senhaja, adjectives form a distinct class, which is not common in Berber. Some Senhaja varieties allow for adjectives to be conjugated, which makes them similar to verbs. Another special feature of Senhaja is the divergent behavior of the verbal clitics. Across Berber, clitics are fronted under specific syntactic conditions. In Ketama, clitic fronting can be incomplete, and the deictic clitic may be doubled. In other parts of Senhaja, clitics can remain postposed, where they normally should be fronted. It is argued that the main driving forces behind the divergent clitic behavior in Senhaja are reanalysis, grammaticalization, and the drive to avoid ambiguity.

Keywords: Senhaja, Berber, Northern Morocco, verbal morphology, morphophonology, clitics, partial clitic fronting, contact linguistics, grammatical borrowing, polylectal grammar, descriptive grammar, dialectal variation.

Variétés berbères senhaja: phonologie, morphologie et morphosyntaxe

Cette thèse présente une étude polylectale de plusieurs variétés berbères senhaja (nord-ouest du Maroc), soulignant les différences et points communs entre elles. Basée sur des données de terrain issues de sept variétés, elle porte une attention particulière à trois variétés : le ketama, le hmed et le zerqet. Ces variétés sont importantes pour la compréhension de la variation linguistique et de l'histoire de la région. Le senhaja présente des similitudes avec le ghomara, parlé plus à l'ouest, et le tarifiyt, parlé plus à l'est, mais les différences restent substantielles. Le senhaja et le ghomara pourraient avoir une origine commune.

La thèse couvre les principaux domaines de la langue (phonologie, morphologie, morphosyntaxe) et s'intéresse aux phénomènes de linguistique de contact. Le senhaja a été fortement influencé par l'arabe dans son lexique, sa morphologie et sa syntaxe. Le modèle arabe de dérivation se retrouve dans la formation de causatifs et de participes de verbes d'origine berbère. Les adjectifs forment une classe distincte, ce qui n'est pas courant en berbère. Dans certaines variétés, les adjectifs sont conjugués, ce qui les rend similaires aux verbes. Une autre particularité est le comportement divergent des clitiques verbaux. En berbère, les clitiques sont préverbés dans des conditions syntaxiques spécifiques. En ketama, l'attraction des clitiques peut être incomplète et le clitique déictique peut être répété. Dans d'autres variétés, les clitiques peuvent rester postposés, alors qu'ils devraient être préposés. La réanalyse, la grammaticalisation et la volonté d'éviter l'ambiguïté peuvent expliquer le comportement divergent des clitiques du senhaja.

Mots clés : senhaja, berbère, Maroc du Nord, morphologie verbale, morphophonologie, clitiques, attraction partielle des clitiques, linguistique du contact, emprunt grammatical, grammaire polylectale, grammaire descriptive, variation dialectale.